AMITY UNIVERSITY

UTTAR PRADESH

Outcome Assessment Plan

Domain: Faculty of Biosciences and Biotechnology

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SECTION I

Introduction to Faculty of Biosciences and Biotechnology

1. Introduction:

The scope of Biosciences and related fields in India has witnessed rapid progress in recent years to become one of largest in the world. Considering the wide diversities in the system there is need to enhance its quality, standard and relevance so that graduates passing out from the system can meet the global challenges of 21st century ahead of them. Biosciences and related courses enable students to develop skills that help them to turn out as excellent future researchers, academicians and entrepreneurs. With specialization in different areas, courses under Biosciences domain prepare students to face the constantly advancing scientific world and impart effective research skills. Biosciences and related studies should emphasize not just in creating good professionals but also on improving and enhancing existing skills while passing on research competence to students.
Attention should be laid on aspects such as enhancing the knowledge base, creating highly skilled human resource, generation of innovative products and technologies leading to the upliftment of society.

The potential areas of research in Biosciences and Biotechnology are so vast that it is not possible to make a comprehensive list. Further, new areas of study emerge continuously. However, an indicative list is described under:

Agriculture: Transgenics of rice, wheat, cotton, potato, and vegetables. Higher productivity

Basic research: On all aspects of molecular biology, genetics, genomics, proteomics, and neurosciences

Bioengineering of crops for biofuels and bioenergy, Bio-fertilizers and bio-pesticides

Bioinformatics: Algorithm design and development, software and tools for data mining and data warehousing applications. Strengthening infrastructure for handling complex and computationally intensive problems. Biological Data Curation, phylogenetics. Setting up dedicated network centres for developing data warehouses. Exploitation of microbial genome information. Training competent personnel.

Bioprospecting and Molecular Taxonomy: Prospecting, molecular characterisation and documentation of economically and ecologically important hotspots of biodiversity in the country.

Biotechnology for societal development: Implementing projects for massive employment generation

Development of diagnostics: For major diseases, genetic disorders, cancer, tuberculosis, HIV, malaria, and neurological disorders

Environment and Biodiversity: Many industrial materials like building materials, fibers, dyes, rubber and oil derive directly from biological sources. Biodiversity is also important to the security of resources such as water, timber, paper, fiber, and food.

Human Resource Development: Training teachers, technicians, scientists, industrialists, IPR experts, and so on covering biotechnology research and commercialization.

Industry: More public-private partnerships for developing joint research and development programmes for commercially viable projects.

Low-cost therapeutics: Developing new vaccines, diagnostics, drugs and drug delivery system; to produce low-cost, small proteins and therapeutics using plants and animals as bioreactors

Marine resources: Fisheries, oil, gas, minerals, sand, gravels, renewable energy sources are some of the marine resources that find their applications in Marine tourism, waste disposal and detoxification, Carbon dioxide capture and storage, habitats, nutrient recycling, water circulation and exchange, gas and climate regulation etc.

Medical Biotechnology: Techniques like gene therapy, recombinant DNA technology and polymerase chain retort which employ genes and DNA molecules to diagnose diseases. There are various applications of Biotechnology such as Gene therapy, Biopharmaceuticals, Pharmacogenomics, genetic testing etc. in the field of medicine.

Medicinal and aromatic plants: Introduction and marketing of herbal products

Herbal drugs and Nutraceuticals. Genetic engineering of medicinal plants

Metabolic engineering: Use of recombinant DNA technology

Neurosciences: Neurodegenerative diseases such as Alzheimer's, Parkinson's, and motor neuron disease, which would cover study of molecular genetics of these disorders. Neuro-AIDS, autism, and dyslexia.

Plant tissue culture: Providing tissue culture technology at the grassroots level to cover the most plant rich regions of the country which need massive afforestation and wasteland recovery. Utilisation of tissue culture for enrichment of genetic diversity. Genetic manipulation of cell culture in forestry for disease resistance and reduction of regeneration time.

Vaccine research for major livestock diseases

The industry /profession needs are continuously changing while the global environment of education around the world is witnessing changes.

SECTION II:

Introduction of Outcome Assessment Plan

Outcome Assessment

Outcome assessment is a systematic, evaluative process that is implemented to secure learning experiences that are congruent with original goals and objectives; thereby providing a basis for the effectiveness and continuous quality improvement of the academic unit.

1) The annual outcome assessment process is more qualitative and focuses on improving teaching by analyzing student learning outcomes.
2) The programme review process is more quantitative and focuses on the programme/discipline as a whole, how effective it is, and that our students are learning.

3) To achieve the above, some aspect of each programmes goals and objectives needs to be assessed on an annual basis.
4) All programme and general education goals shall be evaluated annually

The outcome assessment plan includes:

1. **Mission** - The Mission is defined for the domain which flows down to the Institution level and finally to the programme level. The mission at the institution and programme level is aligned with the domain mission

2. **Broad Based Goals:** - The broad based are defined under the following categories:

   2.1 Educational Goals: The Educational Goals are defined at Domain, Institution and Programme level. The Educational Goals at the institution and programme level are aligned with the domain mission.

   2.1.1 **Operational Goals:** The Operational Goals are defined at Domain, Institution and Programme level. The Operational Goals at the institution and programme level are aligned with the domain mission.

3. **Outcomes:** The Outcomes are defined under the following categories:

   3.1 Operational Outcomes: The operational outcomes are defined for the domain and assessed at the domain level

   3.2 Educational Goals - The Learning outcomes are defined for each programme and each learning outcome is assessed to identify that the established learning objectives are achieved.

   3.3 Mapping of PEOs and PLOs – The relationship of PEOs and PLOs are clearly indicated through the mapping of learning outcomes with the established Objective. Each outcome addresses some objective and achievement of outcome indicates the attainment of Objective

4. **Assessment of Learning and Operational Outcomes** – Each learning outcome is assessed by at least one direct and one indirect method. Similarly Operational outcomes are also assessed using the operational assessment tools. It also ensures that outcomes achieved are consistent with the mission. The results of the annual assessments and other data are used to determine the effectiveness of the programme during the programme review process.

5. **Programme Review:** Through the review of our programs we seek to demonstrate that**:**

   - Students are **learning** the knowledge, skills, and habits necessary to achieve the programme/discipline goals and objectives

   - The **programme/discipline goals** are derived from and support the college mission

- The **curriculum** is coherent, current and consistent
- The **instruction** is effective in enabling student
- The **resources** are adequate for the production of student learning.
- The academic **support services** are adequate to facilitate student learning.

SECTION III:

DOMAIN MISSION AND BROAD-BASED GOALS /OBJECTIVES

DOMAIN MISSION AND BROAD-BASED GOALS /OBJECTIVES

3.1 Mission Statement

Mission of Faculty of Biosciences & Biotechnology
To provide education at all levels in all disciplines of Bio-Sciences and Biotechnology, futuristic and emerging frontier areas of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regard for human values, pride in their heritage and culture, a sense of right and wrong, yearning for perfection and courage of conviction and action.

3.2 Broad-Based Goals / Objectives at Domain / Faculty Level

Educational Goals	
1.	The student shall be able to **develop** knowledge and skills to integrate principles of Biosciences and Biotechnology to achieve academic excellence
2.	The student shall **demonstrate** research skills and conduct innovative research in thrust areas benefitting society which will enhance the intellectual capital of the domain.
3.	The student shall be able to **use** and **apply** latest IT tools to analyze and interpret scientific data
4.	The student shall be able to **interpret** and **comprehend** research in biosciences and biotechnology in order to solve scientific problems.
5.	The student shall be able to **employ** effective communication skills to enhance interpersonal relationship.
6.	The student shall be able to **attain** leadership skills and perform responsibly as an individual as well as in a team while maintaining accountability and output.
7.	The student shall be able to **develop** into a global citizen to build a sustainable world community.
8.	The student shall **practice** ethical behavior and develop empathy towards environmentally and culturally sensitive issues of the society.
9.	The student shall be able to **develop** networking and entrepreneurship skills and create a strong network with the industry and alumni.
10.	The student shall be able to **evaluate** and reflect the virtue of lifelong learning.
11.	The student shall be able to **analyze** the need for environmental conservation and develop sustainable technologies.
12.	The student shall be able to **extend** various aspects of biosciences to achieve holistic and societal development.

3.3 Broad-Based Operational Goals (Resources Required) At Faculty / Domain Level

Sl. No.	Operational Goals
Faculty of Bio Sciences & Biotechnology will	
1	**Create** appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students
2	**Provide** Professional development programmes/opportunities to the faculty and staff to regularly upgrade their knowledge and skills and bring excellence in teaching, learning and research
3	**Demonstrate** sensitivity to the diverse needs of students and accordingly develop facilities and services.
4	Continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
5	Continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.
6	**Arrange all necessary** support system for the students to facilitate campus recruitment, higher education or starting their own ventures.
7	**Act** ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
8	**Create** opportunities for international exposure for its students and faculty.

SECTION IV:

INSTITUTION MISSION AND BROAD-BASED GOALS /OBJECTIVES

4. INSTITUTION MISSION AND BROAD-BASED GOALS /OBJECTIVES

Name of the Institution: Amity Institute of Anthropology(AIA)

4.1 Mission Statement

Mission of Institution
To provide education at all levels in all areas of Anthropology and in the futuristic and emerging frontier areas of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong and yearning for perfection and imbibe attributes of courage of conviction and action.

4.2 Broad-Based Goals / Objectives at Amity Institute of Anthropology

Educational Goals	
1	The student shall be able develop knowledge and skills in anthropology and attain academic excellence.
2	The student shall demonstrate research capability by performing research based project work/dissertation/field work in collaboration with national and international institutes of repute.
3	The student shall be able to use and apply computational tools to analyze and interpret anthropological data
4	The student shall be able to comprehend and interpret research in anthropology in order to solve scientific and social problems.
5	The student shall be able to develop effective communication skills to enhance interpersonal relationship
6	The student shall be able to develop leadership skills and perform reasonably as an individual as well as in a team while maintaining accountability and output.
7	The student shall be able to develop global citizenship skills to build a sustainable world community.
8	The student shall be able to demonstrate ethical behavior and develop sensitivity towards environmentally and culturally sensitive issues of the society
9	The student shall be able to develop networking and entrepreneurship skills and create a strong network with the organization/industry and alumni
10	The student shall be able to evaluate and reflect the virtue of lifelong learning.
11	The student shall be able to recognize the need for environmental conservation and develop sustainable technologies
12	The student shall be able to integrate various aspects of anthropology to achieve holistic and societal development.

4.3 Broad-Based Operational Goals (Resources Required) At Amity Institute of Anthropology

Operational Goals	
1	AIA will create appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students
2	AIA will provide Professional development programmes/opportunities to the faculty and staff to regularly upgrade their knowledge and skills and bring excellence in teaching, learning and research
3	AIA will demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
4	AIA will continuously strive to build strong industry interaction, alumni networks and empanelment of expertise from industry/government/non-government organizations
5	AIA will continually improve the quality of facilities, services, resources and processes with an aim to attain national and international accreditations and institutional ranking
6	AIA will arrange all necessary support system for the students to facilitate placement, higher education or in starting their own ventures.
7	AIA will act ethically to ensure transparency and good governance while discharging various responsibilities to its stakeholders and execution of policies and programs
8	AIA will create opportunities for international exposure, collaborative ventures with international academic institutions for its students and faculty.

Name of the Institution: **Amity Institute of Microbial Biotechnology (AIMB)**

4.1 Mission Statement

Mission of Institution
To provide education at all levels in all disciplines of Microbial Biotechnology, futuristic and emerging frontier areas of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regard for human values, pride in their heritage and culture, a sense of right and wrong, yearning for perfection and courage of conviction and action.

4.2 Broad-Based Goals / Objectives at Institution Level

Educational Goals	
1.	The student shall **develop** knowledge and skills to integrate principles of Microbial Biotechnology to achieve academic excellence
2.	The student shall be able to **demonstrate** research skills and conduct innovative research in thrust areas of Microbial Biotechnology for benefitting society.
3.	The student will be able to **use** IT tools for analyzing biological data.
4.	The student shall be able to justify and **interpret** research in Microbial biotechnology in order to solve scientific problems

5.	The student shall **develop** effective communication skills to disseminate technical information
6.	The student shall **develop** leadership and entrepreneurial skills and perform responsibly as an individual as well as in a team while maintaining accountability and output.
7.	The student shall be able to **develop** global citizenship skills to build a sustainable world community.
8.	The student shall be able to **demonstrate** ethical behavior and develop sensitivity towards environmentally and culturally sensitive issues of the society
9.	The student shall **develop** networking skills and build a strong network with the industry and alumni
10.	The student shall be able to **evaluate** and reflect the virtue of lifelong learning
11.	The student shall be able to identify and **analyze** and create new understanding with relevance to environment conservation.
12.	The student shall be able to **integrate** various aspects of learning and achieve holistic development

4.3 Broad-Based Operational Goals (Resources Required) At Institution level

Operational Goals	
1	Amity Institute of Microbial Biotechnology (AIMB) will **create** appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students
2	AIMB will **provide** Professional development programmes/opportunities to the faculty and staff to regularly upgrade their knowledge and skills and bring excellence in teaching, learning and research
3	AIMB will **demonstrate** sensitivity to the diverse needs of students and accordingly develop facilities and services.
4	AIMB will continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
5	AIMB will continually **improve** the quality of facilities, services, resources and processes with an aim to attain national and international accreditations and institutional ranking.
6	AIMB will **arrange all necessary** support system for the students to facilitate campus recruitment, higher education or starting their own ventures.
7	AIMB will **act** ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
8	AIMB will **create** opportunities for international exposure for its students and faculty.

Name of the Institution: Amity Institute of Microbial Technology (AIMT)

4.1 Mission Statement

Mission of Institution
To provide education at all levels in all disciplines of Microbial Technology and in the futuristic and emerging frontier areas of knowledge, learning, and research and to develop the overall personality of students by making them not only excellent professional but also good individuals with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong and yearning for perfection and imbibe attributes of courage of conviction and action.

4.2 Broad-Based Goals / Objectives at Institution Level

Educational Goals	
1.	The student shall be able to develop knowledge and skills to integrate principles of Microbial Technology to achieve academic excellence.
2.	The student shall be able to integrate various aspects of learning and achieve holistic development.
3.	The student shall be able to develop intellectual capital of the institute by conducting research and innovation, using modern methods/tools of microbial technology.
4.	The student shall be able to demonstrate research capability by performing research based project work/dissertation in national and international biotechnology laboratories of repute.
5.	The student shall be able to develop core values of the university and demonstrate ethical conduct.
6.	The student shall be able to interpret cultural diversity and the consequent responsibilities in relation to the society and environment.
7.	The student shall be able to develop networking skills and establish links with industries and alumni.
8.	The student shall be able to interpret taught concepts to design and undertake practical and professional work thereby improving employment and entrepreneurial skills.
9.	The student shall be able to apply good governance, in terms of value addition and functioning.
10.	The student shall be able to evaluate and reflect the habit of lifelong learning.
11.	The student shall be able to apply scientific implementation to develop learning outcomes
12.	The student shall be able to interpret perceived knowledge for skill development

4.3 Broad-Based Operational Goals (Resources Required) At Institution level

Operational Goals	
1	AIMT intends to provide educational excellence in teaching/academic delivery.
2	AIMT will provide academically conducive environment for holistic development of students
3	AIMT will facilitate environment for innovation and research excellence for the intellectual growth of faculty and students.
4	AIMT will inculcate core values of the university and ethical conduct amongst students, faculty and staff.
5	AIMT will encourage cultural diversity and a sense of social and environmental responsibility.
6	The institute will provide opportunities for international collaborations and exposure to faculty and students.
7	AIMT will proactively build strong relationships with corporates and utilize network of alumni to open communication channels and seek suggestions on curricula, pedagogy, syllabus and training.
8	AIMT will facilitate employment opportunities and also support students to start their own ventures.
9	AIMT will facilitate good governance in discharge of responsibilities and execution of policies and programmes.

Name of the Institution: Amity Institute of Marine Science and Technology (AIMST)

4.1 Mission Statement

Mission of Institution
"To provide education at all levels in the discipline of Marine Science and Technology and in the Futuristic and Emerging frontier area of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong yearning for perfection and imbibe attributes of courage of conviction and action".

4.2 Broad-Based Goals / Objectives at Institution Level

Educational Goals	
1	The students of AIMST shall be able to develop knowledge and skills to integrate principles of Marine science and allied areas to achieve academic excellence
2	The student of AIMST shall demonstrate research skills and conduct innovative research in thrust areas benefitting society which will enhance the intellectual capital in the area of marine science.
3	The student of AIMST shall be able to use and apply latest IT tools to analyze and interpret scientific data.
4	The student of AIMST shall be able to comprehend and interpret research in Marine science and related areas in order to solve scientific problems
5	The student of AIMST shall be able to develop effective communication skills to enhance interpersonal relationship.
6	The student of AIMST shall be able to develop leadership and entrepreneurial skills and perform responsibly as an individual as well as in a team while maintaining accountability and output.
7	The student of AIMST shall be able to develop global citizenship skills to build a sustainable world
8	The student of AIMST shall demonstrate ethical behaviour and develop sensitivity towards coastal environment and culturally sensitive issues of the society.
9	The student of AIMST shall develop networking skills and build a strong network with the industry and alumni
10	The students of AIMST shall be able to evaluate and reflect habit of lifelong learning..
11	The student of AIMST shall be able to recognize the need for environmental conservation and develop sustainable technologies
12	The student of AIMST shall be able to integrate various aspects of learning and achieve holistic development

4.3 Broad-Based Operational Goals (Resources Required) At Institution level

Sl. No.	Operational Goals
1	**AIMST will Create** appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students
2	**AIMST will provide** Professional development programmes/opportunities to the faculty and staff to regularly upgrade their knowledge and skills and bring excellence in teaching, learning and research
3	**AIMST will demonstrate** sensitivity to the diverse needs of students and accordingly develop facilities and services.
4	**AIMST will l** continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
5	**AIMST will l** continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.
6	**AIMST will arrange all necessary** support system for the students to facilitate campus recruitment, higher education or starting their own ventures.
7	**AIMST will act** ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
8	**AIMST will create** opportunities for international exposure for its students and faculty.

Name of the Institution: Amity Institute of Virology & Immunology

4.1 Mission Statement

Mission of Institution
To develop the overall personality of students by making them not only "excellent professionals" but also good individuals, with understanding and regards for "human values", pride in their heritage and culture, a sense of right and wrong, and a yearning for perfection.

4.2 Broad-Based Goals / Objectives at Institution Level

Educational Goals	
1.	The student shall be able to **develop** knowledge and skills to attain academic excellence in the field of Virology and Immunology.
2.	The student shall **demonstrate** research skills to conduct research in the thrust areas of Virology and Immunology to benefit the society.
3.	The student shall be able to **use** and **apply** modern IT tools to analyze the biological data to arrive

	at logical conclusions.
4.	The student shall be able to **analyze** and **interpret** scientific data to solve technical, conceptual and abstract scientific problems.
5.	The student shall be able to **develop** effective communication skills to disseminate technical information and ability to **write** effective reports and reviews for scientific journals.
6.	The student shall be able to **demonstrate** effectiveness and responsibility as an individual as well as in a team while maintaining accountability and output.
7.	The student shall be able to **develop** global citizenship skills to build a sustainable world community.
8.	The student shall be able to **interpret** principles of ethics and apply them to develop sensitivity towards various social and cultural issues of the society.
9.	The student shall be able **develop** networking and entrepreneurship skills and establish links with industry and alumni.
10.	The student shall be able to **create** the virtue of lifelong learning.
11.	The student shall be able to **create** and **develop** thought process for environmental preservation by developing environmentally sustainable technologies.
12.	The student shall be able to **integrate** various aspects of Virology and Immunology to achieve holistic and societal development.

4.3 Broad-Based Operational Goals (Resources Required) At Institution level

Operational Goals	
1	Amity Institute of Virology & Immunology aims to provide valuable resources to achieve academic excellence and holistic development of students
2	AIVI will encourage faculty members and students to obtain funded research projects/consultancy from government agencies and industry and also build international collaborations
3	AIVI will provide complete support to the faculty members and students to publish their research in highly reputed indexed national and international journals
4	AIVI will provide support for research excellence and facilitate patenting of innovation and Subsequent commercialization thereby increasing the intellectual capital.
5	AIVI will facilitate cultivation of core values of the university and ethical conduct amongst students, faculty and staff
6	AIVI will encourage cultural diversity and a sense of social and environmental responsibility
7	AIVI will provide strong industry interaction by way of alumni networks and empanelment of expertise from industry to proactively seek suggestions on curricula, pedagogy and training.
8	AIVI will implement good governance in discharge of responsibilities and execution of policies and programs.
9	AIVI will facilitate opportunities for employment and also support students to start their own ventures.

Amity Institute of Molecular Medicine & Stem Cell Research (AIMMSCR)

4.1 Mission Statement

Mission of Institution
"To provide education at all levels in the discipline of Molecular Medicine and Stem Cell Research and in the Futuristic and Emerging frontier area of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong yearning for perfection and imbibe attributes of courage of conviction and action".

4.2 Broad-Based Goals / Objectives at Institution Level

Educational Goals	
1	The student shall be able to **develop** knowledge and skills in cancer and stem cell biology and attain academic excellence.
2	The student shall **create** intellectual capital by conducting research and innovation, using modern techniques of cancer and stem cell biology.
3	The student shall be able to **apply** computational tools in theory and practice of cancer and stem cell biology.
4	The student shall **devise** solutions and **design** experiments using research-based knowledge and scientifically proven methodology.
5	The student shall be able to **develop** good communication and networking skills and establish links with industries and alumni.
6	The student shall be able to **analyze** effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings.
7	The student shall be able to **identify** cultural and social diversity in the world and the consequent responsibilities in becoming a true global citizen.
8	The student shall be able to **develop** core values of the university and demonstrate ethical conduct.
9	The student shall be able to **interpret** taught concepts to design and undertake practical and professional work, thereby improving employment and entrepreneurial skills.
10	The student shall be able to **evaluate** and reflect the habit of lifelong learning.
11	The student shall be able to **explain** the impact of the modifications in existing life forms under standard health and environmental parameters and also solve other issues related to environment, thus ensuring sustainable development.
12	The student shall **apply** the knowledge of biosciences and cancer and stem cell biology for the benefit of society.

4.3 Broad-Based Operational Goals (Resources Required) At Institution level

Operational Goals	
1	AIMMSCR will **create** appropriate resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students.
2	AIMMSCR will **provide** opportunities to the faculty and staff to regularly upgrade their knowledge and skills by facilitating their participation in professional development programmes.
3	AIMMSCR will **demonstrate** sensitivity to the diverse needs of students and accordingly develop facilities and services.
4	AIMMSCR will continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
5	AIMMSCR will continually **improve** processes and systems with an aim to attain national and international accreditations and institutional ranking.
6	AIMMSCR will **extend** support to the students in order to facilitate campus recruitment, higher education or starting their own ventures.
7	AIMMSCR will **act** ethically to ensure transparency and good governance while discharging various responsibilities to its stakeholders and execution of policies and programs.
8	AIMMSCR will **create** opportunities for international exposure for its students and faculty.

Amity Institute of Biotechnology

4.1 Mission Statement

Mission of Institution
To impart holistic education in all areas of Biotechnology, emerging areas of knowledge, learning and research and for development of the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regard for human values, pride in their heritage and culture, yearning for perfection and courage of conviction and action.

4.2 Broad-Based Goals / Objectives at Amity Institute of Biotechnology

Educational Goals	
1	The student shall be able to **develop** knowledge and skills in biotechnology and attain academic excellence.
2	The student shall **create** intellectual capital by conducting research and innovation, using modern techniques of biotechnology.
3	The student shall be able to **apply** computational tools in theory and practice of biotechnology.
4	The student shall **devise** solutions and **design** experiments using research-based knowledge and scientifically proven methodology.
5	The student shall be able to **develop** good communication and networking skills and establish links with industries and alumni.
6	The student shall be able to **analyze** effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings.
7	The student shall be able to **identify** cultural and social diversity in the world and the consequent responsibilities in becoming a true global citizen.
8	The student shall be able to **develop** core values of the university and demonstrate ethical conduct.
9	The student shall be able to **interpret** taught concepts to design and undertake practical and professional work, thereby improving employment and entrepreneurial skills.
10	The student shall be able to **evaluate** and reflect the habit of lifelong learning.
11	The student shall be able to **explain** the impact of the modifications in existing life forms under standard health and environmental parameters and also solve other issues related to environment, thus ensuring sustainable development.

12	The student shall **apply** the knowledge of biosciences and biotechnology for the benefit of society.

4.3 Broad-Based Operational Goals (Resources Required) At Amity Institute of Biotechnology

Sl. No.	Operational Goals
1	Amity Institute of Biotechnology will **create** appropriate resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students.
2	AIB will **provide** opportunities to the faculty and staff to regularly upgrade their knowledge and skills by facilitating their participation in professional development programmes.
3	AIB will **demonstrate** sensitivity to the diverse needs of students and accordingly develop facilities and services.
4	AIB will continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
5	AIB will continually **improve** processes and systems with an aim to attain national and international accreditations and institutional ranking.
6	AIB will **extend** support to the students in order to facilitate campus recruitment, higher education or starting their own ventures.
7	AIB will **act** ethically to ensure transparency and good governance while discharging various responsibilities to its stakeholders and execution of policies and programs.
8	AIB will **create** opportunities for international exposure for its students and faculty.

Section V:

Programme Mission, PEO's, PLO's and Assessment Plan for each Programme

Programme – B. Sc. (H)Anthropology

5.1.1 Mission Statement

Programme Mission
To impart education at undergraduate level in all areas of Anthropology and in the futuristic and emerging frontier areas of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong and yearning for perfection and imbibe attributes of courage of conviction and action.

5.1.2 Programme Educational Objectives (PEOs)

Educational Goals	
1.	The student shall be able to define knowledge and basic understanding of key concepts, methodologies in the key areas of Anthropology and attain academic excellence
2.	The student shall demonstrate research and innovation, by using modern methods/tools of anthropology.
3.	The student shall be able to use and apply latest IT tools/Bio statistical tools to analyze and interpret anthropological data
4.	The student shall be able to comprehend and interpret anthropology in order to solve scientific and societal problems.
5.	The student shall be able to develop effective communication skills to enhance interpersonal relationship
6.	The student shall demonstrate good governance, in terms of value addition and functioning and leadership skills as an individual or as a team.
7.	The student shall be able to develop global citizenship skills to build a sustainable world community.
8.	The student shall be able to develop core values of the university, demonstrate ethical conduct and develop sensitivity towards environmentally and culturally sensitive issues of the society
9.	The student shall demonstrate networking skills and establish links with organizations/industries and alumni.
10.	The student shall be able to illustrate and reflect the virtue of lifelong learning.
11.	The student shall be able to recognize the need for environmental conservation and develop sustainable technologies
12.	The student shall be able to integrate various aspects of anthropology to achieve holistic and societal development.

5.1.3 Programme Operational Objectives

Operational Goals

1	The program will create appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students in anthropology
2	The program will provide Professional development programme/opportunities to the faculty and staff to regularly upgrade their knowledge and skills and bring excellence in teaching, learning and research
3	The program will demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
4	The program will continuously strive to build strong industry interaction, alumni networks and empanelment of expertise from industry/government/non-government organizations
5	The program will continually improve the quality of facilities, services, resources and processes with an aim to attain national and international accreditations and institutional ranking
6	The program will arrange all necessary support system for the students to facilitate placement, higher education or in starting their own ventures.
7	The program will act ethically to ensure transparency and good governance while discharging various responsibilities to its stakeholders and execution of policies and programs
8	The program will create opportunities for international exposure, collaborative ventures with international academic institutions for its students and faculty.

5.1.4 Programme Learning Outcomes

Intended Learning Outcomes	
1	Student will be able to demonstrate the understanding of anthropological perspective, theory and methods of the four major sub-fields
2	Student will be able to define anthropological perspective to the understanding of problems effectively using anthropological know how/methods
3	Student will be able to demonstrate skills to conduct research, to communicate verbally and to write in the form according to the standards of the discipline
4	Student will be able to construct anthropological knowledge in a variety of situations outside of the classroom. Be able to explain to their prospective employers with confidence how what they have learned in anthropology will help them do an excellent job.
5	Student will be able to demonstrate skills in explaining clearly, communicating in a team, presenting to a growth
6	Student will be able to use skills for working independently as well as team to achieve goals.
7	Student will be able to use and apply appropriate research tools, techniques and resources for understanding of anthropology
8	Student will be able to state ethical reasoning and ethical issues associated with current Anthropological Research.
9	Students will be able to apply skills to plan, execute and conclude a research project in the area of Anthropology
10	Student will be able to identify the need to engage in independent and lifelong leaning in the context of scientific development in the area of Anthropology
11	Student will be able to apply knowledge gained for the environmental conservation and restoration with sustainable development.
12	Student will be able to define social structure, issues and the solutions by the knowledge from humanity related subjects

5.1.5 Programme Operational Outcomes

Operational Outcomes	
1	The programme will promote use of appropriate methodology and pedagogical tools for teaching,

	learning and development.
2	The curriculum will be contemporary and relevant to meet research and industry requirements and benchmarked on global standards by incorporating feedback from all the stakeholders.
3	The student of the programme will graduate in the stipulated time period
4	The institute will provide academic facilities for teaching and learning.
5	The students will be encouraged to participate in co-curricular activities at the university.
5	The student of programme will earn achievements in intra and inter-university extra-curricular activities.
6	The students will effectively communicate with global environment by learning value added courses as a part of their academic curriculum.
7	Faculty and students will be engaged in academic and research in order to enhance their competencies and to contribute to the existing body of Knowledge.
8	The programme will integrate ethics and values in teaching, theory and practice and will aim to develop and retain excellent students, faculty and staff.
9	The programme will facilitate integration of diverse social and cultural environment amongst students and promote environmental conservation values among students
10	The programme will facilitate research collaborations, invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure.
11	The programme will effectively develop and maintain strong relationship with research and academic institutes for joint collaborative research and consultancies in the field of Anthropology. It shall maintain alumni network and keep the curriculum responsive to industry needs
12	The programme will support all the students for quality placements for career development
13	The programme shall establish an internal quality cell for operational quality and process improvement.

5.1.6 Programme Educational Outcome Assessment for B. Sc. (H)Anthropology

#	PEO's	PLO's	Direct	Tool No for Direct Assessment	Target Performance	Indirect	Tool No for Indirect Assessment	Target
1	The student shall be able to define knowledge and basic understanding of key concepts, methodologies in the key areas of Anthropology and attain academic excellence	Student will be able to demonstrate the understanding of anthropological perspective, theory and methods of the four major sub-fields	*Comprehensive Exam, End Term Examination	UG/PLO1/CE Framework	70% students shall pass the exam.	Student Exit Survey	UG/PLO/ Student Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.
2	The student shall demonstrate research and	Student will be able to define anthropological perspective to the	Term Paper, Summer Internship, Viva-voce	UG/PLO2/TP/SI/VV	100% students will underta	Student Exit Survey	UG/PLO/ Student Exit	The Internship Guide rates the

	innovation, by using modern methods/tools of anthropology.	understanding of problems effectively using anthropological know how/methods	Comprehensive Exam	UG/PLO2/CE Framework	ke and complete the dissertation.		Survey	students between 4-5 range on the Likert Scale in the feedback.
3	The student shall be able to use and apply latest IT tools/Bio statistical tools to analyze and interpret anthropological data	Student will be able to demonstrate skills to conduct research, to communicate verbally and to write in the form according to the standards of the discipline	Term Paper, Summer Internship, Viva-voce	UG/PLO2/TP/SI/VV	100% students shall able to leverage IT in order to complete their Assignments and Projects	Student Exit Survey	UG/PLO/ Student Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey
			Comprehensive Exam	UG/PLO2/CE Framework				
4	The student shall be able to comprehend and interpret anthropology in order to solve scientific and societal problems.	Student will be able to construct anthropological knowledge in a variety of situations outside of the classroom. Be able to explain to their prospective employers with confidence how what they have learned in anthropology will help them do an excellent job.	Major Project	UG/PLO4/MP	80% students shall able to demonstrate Problem Solving and Decision Making Skill	Student Exit Survey	UG/PLO/Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey
			Comprehensive Exam	UG/PLO4/CE Framework				
5	The student shall be able to develop effective communication skills to enhance interpersonal relationship	Student will be able to demonstrate skills in explaining clearly, communicating in a team, presenting to a growth	*Rubrics (Communication skills	UG/PLO5/ CS	80% students should secure a grade of 6 and above on a 10-point scale in the present	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey..
			*Comprehensive Exam	UG/PLO5/CE Framework				

					ation component of communication course.			
6	The student shall demonstrate good governance, in terms of value addition and functioning and leadership skills as an individual or as a team.	Student will be able to use skills for working independently as well as team to achieve goals.	Rubrics (Behavioural Science) *Comprehensive Exam	UG/PLO6 / BS UG/PLO6 /Comprehensive Exam	70% students should secure a grade of 6 and above on a 10-point scale..	Student Exit Survey	UG/PLO/ Student Exit Survey	80% students shall score ≥ 75% in exit survey..
7	The student shall be able to develop global citizenship skills to build a sustainable world community.	Student will be able to use and apply appropriate research tools, techniques and resources for understanding of anthropology	*Rubrics FBL	UG/PLO 7/Comprehensive Exam/Rubric	80% students shall achieve a minimum of "Satisfactory" outcome attainment level.	Student Exit Survey	PG/PLO/Exit Survey	80% students shall score ≥ 75% in the Exit Survey.
8	The student shall be able to develop core values of the university, demonstrate ethical conduct and develop sensitivity towards environmentally and culturally sensitive issues of the society	Student will be able to state ethical reasoning and ethical issues associated with current Anthropological Research.	*Plagiarism Checking of Major project Rubrics (Behavioural Science)	UG/PLO8 /Comprehensive Exam/Rubric	100% Students are checked for plagiarism in NTCC report submissions and are allowed to appear for viva-voce upon obtaini	Student Exit Survey	UG/PLO / Student Exit Survey	The Industry Internship Guide rates the students between 4-5 range on the Likert Scale in the feedback. The University will adhere to zero

					ng plagiarism % below 15%.			tolerance towards use of unfair means
9	The student shall demonstrate networking skills and establish links with organizations/industries and alumni.	Students will be able to apply skills to plan, execute and conclude a research project in the area of Anthropology	*Major project Rubrics		50% students shall undergo project work in collaboration with external organizations	Student Exit Survey	UG/PLO/ Student Exit Survey	80% students shall score ≥ 75% in exit survey..
10	The student shall be able to illustrate and reflect the virtue of lifelong learning.	Student will be able to identify the need to engage in independent and lifelong leaning in the context of scientific development in the area of Anthropology	*Major project *Comprehensive Exam	UG/PLO10/Comprehensive Exam	Mentors will asses the Learning curve of 100% students.	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey..
11	The student shall be able to recognize the need for environmental conservation and develop sustainable technologies	Student will be able to apply knowledge gained for the environmental conservation and restoration with sustainable development.	*Comprehensive Exam	UG/PLO11/CE Framework	100 % students will elaborate their research findings through presentations and will defend the viva voce	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.

12	The student shall be able to integrate various aspects of anthropology to achieve holistic and societal development.	Student will be able to define social structure, issues and the solutions by the knowledge from humanity related subjects	Term Paper,*Comprehensive Exam	UG/PLO12/CE Framework	100% students will present the seminar and 50% students should secure a grade of 6 and above on a 10-point scale.	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey..

5.2.7 Mapping of Intended Programme Learning Outcomes to Broad-Based Programme Educational Objectives (PEOs)

The broad-based student learning goals identified in Section I above encompass the intended student learning outcomes as articulated in this section, and are general composites or summaries of these outcomes. These relationships are summarized in the outcomes-to-goals mapping below (**Note: √ in a given cell of the table indicates the intended learning outcome in that row is associated with the learning goal in that column**.):

PEO / PLOs	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PEO 7	PEO 8	PEO 9	PEO 10	PEO 11	PEO 12
BACHELOR PROGRAM												
B.Sc (H) Anthropology												
PLO1	X		X	X								X
PLO2	X	X	X	X	X	X	X	X	X	X		X
PLO3		X	X	X			X	X		X		
PLO4	X	X	X	X		X		X		X	X	X
PLO5					X	X			X	X		X
PLO6	X					X		X				X
PLO7				X	X		X	X	X	X		

PLOs \ PEO	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PEO 7	PEO 8	PEO 9	PEO 10	PEO 11	PEO 12
PLO8			X	X	X	X	X	X	X	X		X
PLO9	X	X	X	X	X	X				X		X
PLO10	X	X	X	X	X			X	X	X	X	
PLO11			X	X	X	X	X	X	X	X		X
PLO12	X	X	X	X	X			X	X	X	X	X

5.2 Programme – <u>M. Sc. Anthropology</u>

5.2.1 Mission Statement

Programme Mission
To provide advanced knowledge at post graduate level in all areas of Anthropology and in the futuristic and emerging frontier areas of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong and yearning for perfection and imbibe attributes of courage of conviction and action.

5.2.2 Programme Educational Objectives (PEOs)

Educational Goals	
1.	The student shall be able to apply knowledge of key concepts, methodologies of Anthropology and attain academic excellence
2.	The student shall formulate research and innovation ideas, by using modern methods/tools of anthropology.
3.	The student shall be able to integrate latest IT tools/Bio statistical tools to analyze and interpret anthropological data
4.	The student shall be able to comprehend and interpret anthropology in order to solve scientific and societal problems.
5.	The student shall be able to develop effective communication skills to enhance interpersonal relationship
6.	The student shall demonstrate good governance, in terms of value addition and functioning and leadership skills as an individual or as a team.
7.	The student shall be able to develop global citizenship skills to build a sustainable world community.
8.	The student shall be able to develop core values of the university, demonstrate ethical conduct and develop sensitivity towards environmentally and culturally sensitive issues of the society
9.	The student shall demonstrate networking skills and establish links with organizations/industries and alumni.
10.	The student shall be able to illustrate and reflect the virtue of lifelong learning.
11.	The student shall be able to recognize the need for environmental conservation and develop sustainable technologies
12.	The student shall be able to integrate various aspects of anthropology to achieve holistic and societal development.

5.2.3 Programme Operational Objectives

Operational Goals	
1.	The program will create appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students in anthropology
2.	The program will provide Professional development programme/opportunities to the faculty and staff to regularly upgrade their knowledge and skills and bring excellence in teaching, learning and research
3.	The program will demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
4.	The program will continuously strive to build strong industry interaction, alumni networks and empanelment of expertise from industry/government/non-government organizations
5.	The program will continually improve the quality of facilities, services, resources and processes with an aim to attain national and international accreditations and institutional ranking
6.	The program will arrange all necessary support system for the students to facilitate placement, higher education or in starting their own ventures.
7.	The program will act ethically to ensure transparency and good governance while discharging various responsibilities to its stakeholders and execution of policies and programs
8.	The program will create opportunities for international exposure, collaborative ventures with international academic institutions for its students and faculty.

5.2.4 Programme Learning Outcomes

2.1.1. Intended Learning Outcomes	
1.	Student will identify, apply and interpret the major paradigms, theories, and conceptual frameworks in Anthropological studies.
2.	The student will identify, formulate, research literature, review existing knowledge and analyze complex anthropological problems to reach substantiated conclusions using principles of anthropology.
3.	The student will apply modern IT tools for acquisition and analysis of anthropological data.
4.	Student will interpret and critique research methods used in Anthropological research studies
5.	The student will develop appropriate level of communication skills to effectively disseminate research and technical information and shall be able to summarize scientific results; write effective reports and reviews in scientific journals.
6.	The student will demonstrate the ability to work independently as individuals and flexibly within a team with effectiveness and responsibility.
7.	The student will build skills to evolve into a responsible global citizen.
8.	The student will develop sensitivity to environmental issues and concerns and shall understand principles of ethics within the framework and apply these principles for environmentally and culturally sensitive issues.
9.	Student will analyze and assess the global range of anthropological and practices in historical and cultural context.
10.	Students will organize the role of personal development, self-directed study and discovery in learning to develop life-long learning.

Operational Outcomes

11.	Student will develop their abilities to recognize environmental and social impacts and to provide leadership on sustainable approaches to complex problems.
12.	Student will construct attitude or stance towards the world: global citizens. Aspire to contribute to society in a full and meaningful way through their roles as members of local, national and global communities

5.2.5 Programme Operational Outcomes

1.	The programme will promote use of advanced anthropological methodology and pedagogical tools for teaching, learning and development.
2.	The curriculum will be contemporary, advanced and relevant to meet research and industry/government requirements and benchmarked on global standards by incorporating feedback from all the stakeholders.
3.	The institute will provide students with excellent academic facilities and technological resources for teaching and learning.
4.	The students will effectively communicate with global environment by learning value added courses as a part of their academic curriculum.
5.	Faculty and students will be actively engaged in academic and research in order to enhance their competencies and to contribute to the existing body of Knowledge.
6.	The programme will integrate ethics and values in teaching, theory and practice and will aim to develop and retain excellent students, faculty and staff.
7.	The programme will facilitate integration of diverse social and cultural environment amongst students and promote environmental conservation values among students.
8.	The programme will facilitate research collaborations, invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure.
9.	The programme will effectively develop and maintain strong relationship with research and academic institutes for joint collaborative research and consultancies in the field of Anthropology
10.	The programme will maintain alumni network and keep the curriculum responsive to industry needs.
11.	The programme will support all the students for quality placements in relevant organizations.
12.	The programme shall establish an internal quality cell for operational quality and process improvement.

5.2.6 Programme Educational Outcome Assessment for M. Sc. Anthropology

Sl. No.	PEO's	PLO's	Direct	Tool No for Direct Assessment	Target Performance	Indirect	Tool No for Indirect Assessment	Target
1	The student shall be able to apply knowledge of key concepts, methodologies of Anthropology and attain academic excellence	Student will identify, apply and interpret the major paradigms, theories, and conceptual frameworks in Anthropological studies.	Comprehensive Exam/End Term Exam	PG/PLO1/CE Framework	70% students shall pass the exam.	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
2	The student shall formulate research and innovation ideas, by using modern methods/tools of anthropology..	The student will identify, formulate, research literature, review existing knowledge and analyze complex anthropological problems to reach substantiated conclusions using principles of anthropology.	Project report submission	PG/PLO2/Dissertation	100% students will undertake and complete the Project report	Feedback of Industry Internship Guide		The Industry Internship Guide rates the students between 3-5 range on the Likert Scale in the feedback.
3	The student shall be able to integrate latest IT tools/Bio	The student will apply modern IT tools for acquisition and analysis	Comprehensive Exam /Practical Exams/Dissertation	PG/PLO3/CE	70% students shall pass the comprehensive exam	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥

	statistical tools to analyze and interpret anthropological data	of anthropological data.						75% in exit survey.
4	The student shall be able to comprehend and interpret anthropology in order to solve scientific and societal problems.	Student will interpret and critique research methods used in Anthropological research studies	Project report submission	PG/PLO4/ PG/PLO4/CE Framework	100% students shall complete their projects and submit the report	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
5	The student shall be able to develop effective communication skills to enhance interpersonal relationship	The student will develop appropriate level of communication skills to effectively disseminate research and technical information and shall be able to summarize scientific results; write effective reports and reviews in scientific journals.	*Rubrics Communication skills	PG/PLO5/ BC	80% students shall achieve the minimum of "satisfactory" outcome attainment level	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
6	The student shall demonstrate good governance, in terms of value addition and functioning	The student will demonstrate the ability to work independently as individuals and flexibly within a team	* Behavioural Science rubrics	PG/PLO6/BS	80% students shall achieve the minimum of "satisfactory" outcome attainment level	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit surv

	and leadership skills as an individual or as a team.	with effectiveness and responsibility .						ey.
7	The student shall be able to develop global citizenship skills to build a sustainable world community.	The student will build skills to evolve into a responsible global citizen.	* Rubrics FBL	UG/PLO7/CE Framework	80% students shall achieve the minimum of "satisfactory" outcome attainment level	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
8	The student shall be able to develop core values of the university, demonstrate ethical conduct and develop sensitivity towards environmentally and culturally sensitive issues of the society	The student will develop sensitivity to environmental issues and concerns and shall understand principles of ethics within the framework and apply these principles for environmentally and culturally sensitive issues.	*Plagiarism Checking of project report	PG/PLO8/CE Framework	100% Students are checked for plagiarism in NTCC report submissions and are allowed to appear for viva-voce upon obtaining plagiarism % below 15%.	Feedback of Internship Guide		The Internship Guide rates the students between 3-5 range on the Likert Scale in the feedback.
9	The student shall demonstrate networking skills and	Student will analyze and assess the global range of anthropologi	Project submission	PG/PLO9/	100 % students shall submit the project	Student Exit Survey	PG/PLO 9/ Student Exit Survey	80% students shall score ≥

	establish links with organizations/industries and alumni.	cal and practices in historical and cultural context	Comprehensive Exam		70% students shall pass the exam			75% in exit survey.
10	The student shall be able to illustrate and reflect the virtue of lifelong learning.	Students will organize the role of personal development, self-directed study and discovery in learning to develop life-long learning.	* Comprehensive Exam	PG/PLO10/CE Framework	70% students shall pass the exam	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
11	The student shall be able to recognize the need for environmental conservation and develop sustainable technologies	Student will develop their abilities to recognize environmental and social impacts and to provide leadership on sustainable approaches to complex problems.	*Section 9 of Comprehensive Exam	PG/PLO11/CE Framework	70% students shall pass the exam		*Section 9 of Comprehensive Exam	PG/PLO11/CE Framework
12	The student shall be able to integrate various aspects of anthropology to achieve holistic and societal development.	Student will construct attitude or stance towards the world: global citizens. Aspire to contribute to society in a full and meaningful way through their roles as members of local, national and global communities.	*Comprehensive Exam	PG/PLO12/CE Framework	70% students shall pass the exam	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.

5.2.7 Mapping of Intended Programme Learning Outcomes to Broad-Based Programme Educational Objectives (PEOs)

The broad-based student learning goals identified in Section I above encompass the intended student learning outcomes as articulated in this section, and are general composites or summaries of these outcomes. These relationships are summarized in the outcomes-to-goals mapping below (**Note: √ in a given cell of the table indicates the intended learning outcome in that row is associated with the learning goal in that column**.):

PEO / PLOs	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PEO 7	PEO 8	PEO 9	PEO 10	PEO 11	PEO 12
MASTER'S PROGRAM												
M.Sc. Anthropology												
PLO1	X		X	X								X
PLO2	X	X	X	X	X	X	X	X	X	X		X
PLO3		X	X	X			X	X		X		
PLO4	X	X	X	X		X		X		X	X	X
PLO5					X	X			X	X		X
PLO6	X					X		X				X
PLO7				X	X		X	X	X	X		
PLO8			X	X	X	X	X	X	X	X		X
PLO9	X	X	X	X	X	X				X		X
PLO10	X	X	X	X	X			X	X	X	X	
PLO11			X	X	X	X	X	X	X	X		X
PLO12	X	X	X	X	X			X	X	X	X	X

5.3 Amity Institute of Microbial Biotechnology

Programme – M.Sc. by Research in Microbial Biotechnology

5.3.1 Mission Statement

Programme Mission

To provide education at all levels in all disciplines of Microbial Biotechnology, futuristic and emerging frontier areas of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regard for human values, pride in their heritage and culture, a sense of right and wrong, yearning for perfection and courage of conviction and action.

5.3.2 Programme Educational Objectives (PEOs)

Educational Goals
1. Student shall **develop** the specialized theoretical and practical knowledge for microbial biotechnology
2. The student shall **demonstrate** research skills to conduct research in the thrust areas of Microbial Biotechnology to benefit the society.
3. Student shall be able to **use** IT tools for analysis of biological data.
4. The student shall be able to **analyze** scientific data to solve technical and conceptual scientific problems.
5. Student shall **develop** skills to make effective and appropriate communication in both professional and social contexts.
6. Student shall **demonstrate** a capacity for self-management, team work, leadership and decision making based on open mindedness, objectivity and reasoned analysis in order to achieve goals.
7. Student shall be able to develop global citizenship skills to build a sustainable world community.
8. Student shall **develop** the understanding of ethical principles and codes of conduct of research related to science and to behave consistently with personal respect and commitment to ethical practice.
9. Student shall be able to **apply** sound planning and organizational skills to promote and contribute to the strategic planning of their enterprise or organization.
10. The student shall be able to **reflect** the virtue of lifelong learning.
11. Student shall be able to **identify** problems and expertise in new concept development and create new understanding with relevance to environment, their sustainability and microbial biotechnological profession.
12. The student shall be able to **integrate** various aspects of Microbial Biotechnology to achieve societal and holistic development.

5.3.3 Programme Operational Objectives

Operational Goals	
1	The program intends to provide educational excellence in teaching/academic delivery.
2	The program will provide an academically conducive environment for holistic development of students.
3	The program will facilitate environment for innovation and research excellence for the intellectual growth of faculty and students
4	The program will facilitate cultivation of core values of the university and ethical conduct amongst students, faculty and staff.
5	The program will encourage cultural diversity and a sense of social and environmental responsibility.
6	The program will provide ample opportunities for international exposure to faculty and students.
7	The program will formulate an alumni network and build strong relationship with industry while proactively seeking suggestions on curricula and training.

8	The program will facilitate employment opportunities and also support students to start their own ventures.
9	The program will implement good governance in discharge of responsibilities and execution of policies and programs

5.3.4 Programme Learning Outcomes

2.1.1. Intended Learning Outcomes	
1.	Students will **develop** theoretical and practical knowledge in physiological and molecular aspects of microorganisms
2	Students will be able to **apply** theoretical knowledge in solving the problems of Microbial biotechnology and apply the practical experience in these fields for development of sustainable environmental technologies
3	The student will **apply** modern IT tools for acquisition and analysis of biological data.
4	Students will be able to **analyze** problems using a range of different practical approaches and techniques to develop/ manage projects
5	Students will be able to **develop** appropriate level of communication skills to effectively disseminate research and technical information
6	Students will be able to **demonstrate** ability to work independently as individual and flexibility in a team with effectiveness and responsibility
7	The student will **develop** skills to evolve into a responsible global citizen.
8	Students will **develop** ethical and cultural values in theory and practice.
9	Students will be able to **investigate** problems using a range of different practical approaches and techniques to develop/ manage projects
10	The Student will **develop** the lifelong learning to contribute to environment and society
11	Students will be able to **apply** theoretical knowledge in solving the problems of Microbial biotechnology and apply the practical experience in these fields for development of sustainable environmental technologies
12	The student will be able to **combine** principals of Microbiology and biotechnology and implement them to handle various societal issues

5.3.5 Programme Operational Outcomes

Operational Outcomes	
1	The program M. Sc. by Research will apply appropriate methodology and pedagogical tools to create teaching, learning and development.
2	The curriculum will be relevant to research and industry requirements and benchmarked on global standards by incorporating feedback from all the stakeholders.
3	The student of AIMB will be graduated in the stipulated time period
4	The student of AIMB will earn achievements in intra and inter-university Extra Curricular activities.
5	Faculty and students will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute in the existing body of Knowledge.

6	The AIMB will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff.
7	AIMB will facilitate cultivation of cultural and environmental conservation values among students.
8	AIMB will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure.
9	AIMB will develop and maintain strong relationship with industries for consultancies.
10	AIMB will maintain alumni network and keep the curriculum responsive to industry needs.
11	AIMB will support all the students for quality placements or join family business or start their own venture
12	AIMB will establish an internal quality cell for operational quality and process improvement.

5.3.6 Programme Educational Outcome Assessment for M. Sc. by Research in Microbial Biotechnology

Sl. No.	PEO's	PLO's	Direct	Tool No for Direct Assessment	Target Performance	Indirect	Tool No for Indirect Assessment	Target Performance
1	Student shall **develop** the specialized theoretical and practical knowledge for microbial biotechnology	Students will **develop** theoretical and practical knowledge in physiological and molecular aspects of microorganisms	1. Comprehensive Exam	PG/PLO1/CE Framework	1. 75% students shall pass the exam	1. Student Exit Survey	1. PG/PLO/Exit Survey	1. 80% students' response range between 3.75-5 on the Likert Scale in the Student Exit Survey
2	The student shall **demonstrate** research skills to conduct research in the thrust areas of Microbial Biotechnology to benefit the society	Students will be able to **apply** theoretical knowledge in solving the problems of Microbial biotechnology and apply the practical experience in these fields for development of sustainable environmental	1. Comprehensive Exam 2. Term Paper 3. Dissertation I 4. Dissertation II	1.PG/PLO2/CE Framework 2.PG/PLO2/Dissertation 3. PG/PLO2/Dissertation 4. PG/PLO2/Dis	1. 75% students shall pass the exam 2. 100% students will undertake and 90% shall complete the same in first attempt. 3. 100% students shall leverage IT in order to complete their Assignments and Projects 4. Students	1. Student Exit Survey 2. Assessment by External Examiners	1. PG/PLO/Exit Survey 2. PG/PLO/Dissertation	1. 80% students' response range between 3.75-5 on the Likert Scale in the Student Exit Survey 2. The Industry Internship Guide/external examiner rates the 90 % students between grade point 6-10.

		technologies	5. Plagiarism Checking of Term Paper/Practical Training/ Industrial Internship/ Dissertation I and Dissertation II	sertation 5. PG/PLO2/Dissertation	should secure a grade point of 5 and above on a 10-point scale. 5. 100% Students should be checked for plagiarism in NTCC report submissions and allowed to appear for viva-voce upon obtaining plagiarism below 15%.			
3	Student shall be able to **use** IT tools for analysis of biological data	The student will **apply** modern IT tools for acquisition and analysis of biological data	1. Comprehensive Exam	PG/PLO3/CE Framework	1. 75% students shall pass the exam	1. Student Exit Survey	1. PG/PLO/Exit Survey	80% students' response range between 3.75-5 on the Likert Scale in the Student Exit Survey
4	The student shall be able to **analyze** scientific data to solve technical and conceptual scientific problems	Students will be able to **analyze** problems using a range of different practical approaches and techniques to develop/ manage projects	1. Term Paper 2. Dissertation I 3. Dissertation II 4. Plagiarism Checking of Term Paper/Practical Training/ Industrial	1. PG/PLO4 /Dissertation 2. PG/PLO4 /Dissertation 3. PG/PLO4 /Dissertation 4. PG/PLO4 /Dissertation	1. 100% students will undertake and 90% shall complete the same in first attempt. 2. 100% students shall leverage IT in order to complete their Assignments and Projects 3. Students should secure a grade point of 5 and above on a 10-point scale. 4. 100% Students should be checked for plagiarism in NTCC report	1.Student Exit Survey 2. Assessment by External Examiners	1. PG/PLO/Exit Survey 2. PG/PLO/Dissertation	1. 80% students' response range between 3.75-5 on the Likert Scale in the Student Exit Survey 2. The Industry Internship Guide/external examiner rates the 90 % students between grade point 6-10.

			Internship/ Dissertation I and Dissertation II		submissions and allowed to appear for viva-voce upon obtaining plagiarism below 15%.			
5	Student shall **develop** skills to make effective and appropriate communication in both professional and social contexts	Students will be able to **develop** appropriate level of communication skills to effectively disseminate research and technical information	1. Communication skills Course Result analysis of all semesters	1. PG/PLO5/BC	1. 80% students should secure a grade of 5 and above on a 10-point scale in the presentation of communication skills course	1.Student Exit Survey	1. PG/PLO/Exit Survey	1. 80% students' response range between 3.75-5 on the Likert Scale in the Student Exit Survey
6	Student shall **demonstrate** a capacity for self-management, team work, leadership and decision making based on open mindedness, objectivity and	Students will be able to **demonstrate** ability to work independently as individual and flexibility in a team with effectiveness and responsibility	1. Comprehensive Exam 2. Behavioral Science Course Result analysis of all semesters 3. FBL Course Result analysis	1. PG/PLO6/CE Framework 2. PG/PLO6/BS 3. PG/PLO6 /FBL	1. 75% students shall pass the exam 2. 80% students should secure a grade of 5 and above on a 10-point scale 3. 80% students should secure a grade of 5 and above on	1. Student Exit Survey	1. PG/PLO/Exit Survey	1. 80% students' response range between 3.75-5 on the Likert Scale in the Student Exit Survey

	reasoned analysis in order to achieve goals		of all semesters		a 10-point scale			
7	Student shall be able to develop global citizenship skills to build a sustainable world community	The student will **develop** skills to evolve into a responsible global citizen	1. Communication skills Course Result analysis of all semesters 2. Behavioral Science Course Result analysis of all semesters 3. Plagiarism Checking of Term Paper/Practical Training/ Industrial Internship/ Dissertation I and Dissertation II	1. PG/PLO7/CE Famework 2. PG/PLO7/BS 3. PG/PLO7 /Dissertation	1. 80% students should secure a grade of 5 and above on a 10-point scale in the presentation of communication skills course 2. 80% students should secure a grade of 5 and above on a 10-point scale 3. 100% Students should be checked for plagiarism in NTCC report submissions and allowed to appear for viva-voce upon obtaining plagiarism below 15%.	1. Student Exit Survey	1. PG/PLO/Exit Survey	1. 80% students' response range between 3.75-5 on the Likert Scale in the Student Exit Survey

8	Student shall **develop** the understanding of ethical principles and codes of conduct of research related to science and to behave consistently with personal respect and commitment to ethical practice	Students will **develop** ethical and cultural values in theory and practice	1. Term Paper 2. Dissertation I 3. Dissertation II 4. Plagiarism Checking of Term Paper/Practical Training/ Industrial Internship/ Dissertation I and Dissertation II	1. PG/PLO8 /Dissertation 2. PG/PLO8 /Dissertation 3. PG/PLO8 /Dissertation 4. PG/PLO8 /Dissertation	1. 100% students will undertake and 90% shall complete the same in first attempt. 2. 100% students shall leverage IT in order to complete their Assignments and Projects 3. Students should secure a grade point of 5 and above on a 10-point scale. 4. 100% Students should be checked for plagiarism in NTCC report submissions and allowed to appear for viva-voce upon obtaining plagiarism below 15%.	1. Student Exit Survey 2. Assessment by External Examiners	1. PG/PLO/Exit Survey 2. PG/PLO/Dissertation	1. 80% students' response range between 3.75-5 on the Likert Scale in the Student Exit Survey 2.. The Industry Internship Guide/external examiner rates the 90 % students between grade point 6-10.
9	Student shall be able to **apply** sound planning and organizational skills to promote and contribute to the strategic planning of their enterprise or organization	Students will be able to **investigate** problems using a range of different practical approaches and techniques to develop/ manage projects	1. Comprehensive Exam 2. Term Paper 3. Dissertation I 4. Dissertation II	1. PG/PLO9/CE Framework 2. PG/PLO9 /Dissertation 3. PG/PLO9 /Dissertation 4. PG/PLO9 /Disse	1. 75% students shall pass the exam 2. 100% students will undertake and 90% shall complete the same in first attempt. 3. 100% students shall leverage IT in order to complete their Assignments and Projects 4. Students	1. Student survey 2. Assessment by External Examiners	1. PG/PLO/Exit Survey 2. PG/PLO/Dissertation	1. 80% students' response range between 3.75-5 on the Likert Scale in the Student Exit Survey 2. The Industry Internship Guide/external examiner rates the 90 % students between grade point 6-10.

				rtation	should secure a grade point of 5 and above on a 10-point scale.			
10	The student shall be able to **reflect** the virtue of lifelong learning	The Student will **develop** the lifelong learning to contribute to environment and society	1. Comprehensive Exam	1. PG/PLO10/CE Framework	1. 75% students shall pass the exam	1. Student Exit Survey 2. Assessment by External Examiners	1. PG/PLO/Exit Survey 2. PG/PLO/Dissertation	1. 80% students' response range between 3.75-5 on the Likert Scale in the Student Exit Survey 2. The Industry Internship Guide/external examiner rates the 90 % students between grade point 6-10.
11	Student shall be able to **identify** problems and expertise in new concept development and create new understanding with relevance to environment, their sustainability and microbial biotechnological profession	Students will be able to **apply** theoretical knowledge in solving the problems of Microbial biotechnology and apply the practical experience in these fields for development of sustainable environmental technologies	1. Comprehensive Exam	1. PG/PLO11/CE Framework	1. 75% students shall pass the exam	1. Student Exit Survey 2. Assessment by External Examiners	1. PG/PLO/Exit Survey 2. PG/PLO/Dissertation	1. 80% students' response range between 3.75-5 on the Likert Scale in the Student Exit Survey 2. The Industry Internship Guide/external examiner rates the 90 % students between grade point 6-10.
12	The student shall be able to **integrate** various aspects of	The student will be able to **combine** principals of Microbiology and	1. Comprehensive Exam	1. PG/PLO12/CE Framework	1. 75% students shall pass the exam	1. Student Exit Survey	1. PG/PLO/Exit Survey	1. 80% students' response range between 3.75-5 on the Likert Scale in the

	Microbial Biotechnology to achieve societal and holistic development	biotechnology and implement them to handle various societal issues				2. Assessment by External Examiners	2. PG/PLO/Dissertation	Student Exit Survey 2. The Industry Internship Guide/external examiner rates the 90 % students between grade point 6-10.

5.3.7 Mapping of Intended Programme Learning Outcomes to Broad-Based Programme Educational Objectives (PEOs)

The broad-based student learning goals identified in Section I above encompass the intended student learning outcomes as articulated in this section, and are general composites or summaries of these outcomes. These relationships are summarized in the outcomes-to-goals mapping below (**Note: √ in a given cell of the table indicates the intended learning outcome in that row is associated with the learning goal in that column**.):

(PEOs) / (PLOs)	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PEO 7	PEO 8	PEO 9	PEO 10	PEO 11	PEO 12
MASTER'S LEVEL PROGRAM												
M. Sc. By Research												
Learning Outcome 1	√	√										
Learning Outcome 2	√	√	√	√								√
Learning Outcome 3		√	√	√			√					
Learning Outcome 4	√			√			√					
Learning Outcome 5		√			√				√			
Learning Outcome 6					√	√						
Learning Outcome 7	√		√	√			√	√				
Learning Outcome 8								√			√	
Learning Outcome 9	√					√			√			
Learning Outcome										√		

10												
Learning Outcome 11								√			√	
Learning Outcome 12	√	√	√	√			√					√

5.4 Amity Institute of Microbial Technology (AIMT)

BACHELOR'S-Level Programme – B.Sc. (H) Microbiology

5.4.1 Mission Statement

Programme Mission
"To provide basic education in the area of Marine Science, related areas of applied science, humanity related areas and in the Futuristic and emerging frontier areas of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong yearning for perfection and imbibe attributes of courage of conviction and action".

5.4.2 Programme Educational Objectives (PEOs)

Educational Goals
The student shall be able to develop knowledge and skills to integrate principles of Marine science and allied areas to achieve academic excellence
The student shall demonstrate research skills and conduct innovative research in thrust areas benefitting society which will enhance the intellectual capital in the area of marine science.
The student of AIMST shall be able to use and apply latest IT tools to analyze and interpret scientific data.
The student shall be able to comprehend and interpret research in Marine science and related areas in order to solve scientific problems
The student shall be able to develop effective communication skills to enhance interpersonal relationship.
The student shall be able to develop leadership and entrepreneurial skills and perform responsibly as an individual as well as in a team while maintaining accountability and output.
The student shall be able to develop global citizenship skills to build a sustainable world
The student shall demonstrate ethical behaviour and develop sensitivity towards coastal environment and culturally sensitive issues of the society.
The student shall develop networking skills and build a strong network with the industry and alumni
The students of shall be able to evaluate and reflect habit of lifelong learning..
The student shall be able to recognize the need for environmental conservation and develop sustainable technologies
The student of AIMST shall be able to integrate various aspects of learning and achieve holistic development

5.4.3 Programme Operational Objectives

Operational Goals	
1	Program will **create** appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students

2	Program will **provide** Professional development opportunities to the faculty and staff to regularly upgrade their knowledge and skills and bring excellence in teaching, learning and research
3	Program will **demonstrate** sensitivity to the diverse needs of students and accordingly develop facilities and services.
4	Program will continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry
5	Program will continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.
6	Program will **arrange all necessary** support system for the students of all the programs to facilitate campus recruitment, higher education or starting their own ventures.
7	Program will **act** ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
8	Program will **create** opportunities for international exposure for its students and faculty.

5.4.4 Programme Learning Outcomes

Intended Learning Outcomes
Student will be able to demonstrate and understanding of the various components of Marine Science with Fundamental knowledge of Basic Science and Applied Science.
Student will be able to outline the problem on the basis of principles of Marine Science and Basic Science.
Student will be able to show skills for practical solution in the area of Marine Science.
Student will be able to recite new knowledge and opportunities for leaning through the process of research and enquiry.
Student will be able to demonstrate skills in explaining clearly, communicating in a team, presenting to a growth.
Student will use skills for working independently as well as team to achieve goals.
Student will be able to use and apply appropriate tools, techniques and resources for understanding of the Marine eco-system.
Student will be able to state ethical reasoning and ethical issues associated with current Marine Science Research.
Students will be able to apply skills to plan, execute and conclude a research project in the area of Marine Science
Student will identify the need to engage in independent and life long leaning in the context of scientific development in the area of Marine Science.
Student will be able to apply knowledge gained for the environmental conservation and restoration with sustainable development.
Student will be able to define social structure, issues and the solutions by the knowledge from humanity related subjects.

5.4.5 Programme Operational Outcomes

	Operational Outcomes
1	Program will promote use of appropriate methodology and pedagogical tools for teaching, learning and development.

2	The curriculum will be contemporary and relevant to meet research and industry requirements and benchmarked on global standards by incorporating feedback from all the stakeholders.
3	The student of AIMST will graduate in the stipulated time period
4	Program will provide academic facilities, technological Resources for teaching and learning at AIMST
5	The student of AIMST will earn achievements in intra and inter-university Extra Curricular activities.
6	Faculty and students will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing body of Knowledge.
7	Program will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff.
8	Program will facilitate cultivation of cultural and environmental conservation values among students.
9	Program shall develop and maintain strong relationship with research institutes, alumni and industry.
10	Program will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure and will support all the students for quality placements or join family business or start their own venture
12	Program will establish an internal quality cell for operational quality and process improvement.

5.4.6 Programme Educational Outcome Assessment for B.Sc. (H) Microbiology

Sl. No.	PEO's	PLO's	Direct	Tool No for Direct Assessment	Target Performance	Indirect	Tool_No for Indirect Assessment	Target Performance
1	The student shall be able to **develop** the basic knowledge and skills to integrate principles of Microbiology to achieve academic excellence	The student will **define** and **summarize** basic concepts of Microbiology	Comprehensive Exam	UG/PLO1/CE Framework	80% students shall pass the exam	Student Exit Survey	UG/PLO/ Exit Survey	80% students' response range between 4-5 on the Likert Scale in the Student Exit Survey
2	The student shall be able to **develop** various aspects of learning and achieve holistic	The student will **develop** various aspects of learning to meet research and industry	Term Paper, Summer Internship, Viva-voce Comprehensive Exam	UG/PLO2/Dissertation UG/PLO2/CE Framework	100% students will undertake and complete the Internship	Feedback of Internship Guide	UG/PLO /Exit Survey	The Internship Guide rates the students between 4-5 range on the Likert Scale in the feedback

Sl. No.	PEO's	PLO's	Direct	Tool No for Direct Assessment	Target Performance	Indirect	Tool_No for Indirect Assessment	Target Performance
	development	requirements benchmarked on global standards						
3	The student shall be able to **develop** intellectual capital by conducting research & development using modern methods/tools of microbiology	The student will **use** various modern tools and techniques to **develop** intellectual capital by conducting research	Comprehensive Exam	UG/PLO3/CEFramework	100% students shall able to use modern microbiological tools in order to complete their research project	Student Exit Survey	UG/PLO/Exit Survey	80% students' response range between 4-5 on the Likert Scale in the Student Exit Survey
4	The student shall be able to **develop** research capability by performing research based project work	The student will **develop** new knowledge through experimental methods	Comprehensive Exam	UG/PLO4/CE Framework	100% students will undertake and complete the research based project work	Student Exit Survey	UG /PLO/Exit Survey	80% students' response range between 4-5 on the Likert Scale in the Student Exit Survey
5	The student shall be able to **develop** core values of the university and demonstrate ethical conduct	The student will **develop** ethical code of conduct	Plagiarism Checking of Dissertation Comprehensive Exam	UG/PLO5/ CE Framework	100% NTCC reports will be checked for plagiarism which should return similarity index below 15%.	Student Exit Survey	UG /PLO/Exit Survey	80% students' response range between 4-5 on the Likert Scale in the Student Exit Survey
6	The student shall be	The student will	Behavioural Science course	UG/PLO6/BS	80% students would	Student Exit Survey	UG /PLO/Exit Survey	80% students' response

Sl. No.	PEO's	PLO's	Direct	Tool No for Direct Assessment	Target Performance	Indirect	Tool_No for Indirect Assessment	Target Performance
	able to **interpret** cultural diversity and the consequent responsibilities in relation to the society and environment.	**interpret** cultural diversity and develop responsibility for society and environment	result of all semesters		secure a grade of 6 and above on a 10 point scale in the Journal for Success Component of BS			range between 4-5 on the Likert Scale in the Student Exit Survey
7	The student be able to shall be able to **develop** networking skills and establish links with industries and alumni	The student will **develop** links with Alumni and Industry	Comprehensive Exam	UG/PLO7/ CE Framework	100% students' participation in self work component	Student Exit Survey	UG /PLO/Exit Survey	80% students' response range between 4-5 on the Likert Scale in the Student Exit Survey
8	The student shall be able to **interpret** taught concepts to design and undertake practical and professional work	The student will **explain** the taught concepts in employment and entrepreneurship	Comprehensive Exam	UG/PLO7/ CE Framework	100% students' participation in project report preparation	Student Exit Survey	UG /PLO/Exit Survey	80% students' response range between 4-5 on the Likert Scale in the Student Exit Survey
9	The student shall be able to **apply** good governance, in terms of value addition and functioning.	The student will **apply** principles of good governance and perform effectively individually and as a team member	Comprehensive Exam	UG/PLO7/ CE Framework	100% NTCC reports will be checked for plagiarism which should return similarity index below	Student Exit Survey In disciplinary Cases	UG /PLO/Exit Survey	80% students' response range between 4-5 on the Likert Scale in the Student Exit Survey Zero tolerance towards use

Sl. No.	PEO's	PLO's	Direct	Tool No for Direct Assessment	Target Performance	Indirect	Tool_No for Indirect Assessment	Target Performance
					15%.			of unfair means
10	The student shall be able to **develop** the habit of lifelong learning.	The student will **develop** the habit of lifelong learning	Comprehensive Exam	UG/PLO7/ CE Framework	100% students submit the research report and 50% students should secure a grade of 6 and above on a 10-point scale	Student Exit Survey	UG /PLO/Exit Survey	80% students' response range between 4-5 on the Likert Scale in the Student Exit Survey
11	The student shall be able to **apply** scientific skills to implement translational approaches	The student will be able to **use** scientific values to **develop** learning outcomes	Comprehensive Exam	UG/PLO7/ CE Framework	100% students' participation in self work component	Student Exit Survey	UG /PLO/Exit Survey	80% students' response range between 4-5 on the Likert Scale in the Student Exit Survey
12	The student shall be able to **develop** learning outcomes for further enhancement of knowledge	The student will be able to **apply** learning practices to **develop** experimentation approach to implement knowledge	Comprehensive Exam	UG/PLO7/ CE Framework	100% students' participation in self work component	Student Exit Survey	UG /PLO/Exit Survey	80% students' response range between 4-5 on the Likert Scale in the Student Exit Survey

5.4.7 Mapping of Intended Programme Learning Outcomes to Broad-Based Programme Educational Objectives (PEOs)

The broad-based student learning goals identified in Section I above encompass the intended student learning outcomes as articulated in this section, and are general composites or summaries of these outcomes. These relationships are summarized in the outcomes-to-goals mapping below (**Note: √ in a given cell of the table indicates the intended learning outcome in that row is associated with the learning goal in that column**.):

(PEOs) PLOs	PEO 1	PEO 2	PEO 3	PEO4	PEO5	PEO6	PEO7	PEO8	PEO9	PEO10	PEO11	PEO12
BACHELOR'S LEVEL PROGRAMS – B.Sc. (H) MICROBIOLOGY												
Name of the programme												
Learning Outcome 1	√	√	√				√	√				
Learning Outcome 2	√			√	√				√	√		
Learning Outcome 3		√									√	√
Learning Outcome 4			√					√	√			
Learning Outcome 5	√				√	√						
Learning Outcome 6			√				√	√				
Learning Outcome 7	√							√	√			
Learning Outcome 8	√	√		√	√							
Learning Outcome 9	√								√	√		
Learning Outcome 10		√	√		√	√					√	√
Learning Outcome 11	√		√					√	√			
Learning Outcome 12	√	√	√						√	√		

5.5 Programme – M.Sc. Microbiology

5.5.1 Mission Statement

Programme Mission
To provide education at all levels in all disciplines of microbiology and in the futuristic and emerging frontier areas of knowledge, learning, and research and to develop the overall personality of students by making them not only excellent professional but also good individuals with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong and yearning for perfection and imbibe attributes of courage of conviction and action.

5.5 .2 Programme Educational Objectives (PEOs)

Educational Goals	
1.	The student shall be able to **demonstrate** the advanced knowledge and skills to integrate principles of microbiology to achieve academic excellence
2.	The student shall be able to **use** various aspects of learning and achieve holistic development
3.	The student shall be able to **demonstrate** intellectual capital by conducting independent research

	& development using modern methods/tools of microbiology
4.	The student shall be able to **demonstrate** research capability by performing research based project work/dissertation in national and international microbiology laboratories of repute
5.	The student shall be able to **demonstrate** core values of the university and ethical conduct
6.	The student shall be able to **interpret** cultural diversity and the consequent responsibilities in relation to the society and environment
7.	The student shall be able to **demonstrate** networking skills and establish links with industries and alumni
8.	The student shall be able to **interpret** taught concepts to design and undertake practical and professional work thereby improving employment and entrepreneurial skills
9.	The student shall be able to **apply** good governance, in terms of value addition and functioning
10.	The student shall be able to **evaluate** and reflect the habit of lifelong learning
11.	The student shall be able to **apply** scientific skills to implement translational approaches
12.	The student shall be able to **develop** learning outcomes for further enhancement of knowledge

5.5.3 Programme Operational Objectives

Operational Goals	
1	This programme intends to provide educational excellence in teaching/academic delivery
2	This programme will provide academically conducive environment for holistic development of students
3	This programme will facilitate environment for innovation and research excellence for the intellectual growth of faculty and students
4	This programme will facilitate cultivation of core values of the university and ethical conduct amongst students, faculty and staff
5	This programme will encourage cultural diversity and a sense of social and environmental responsibility
6	This programme will provide opportunities for international collaborations and exposure to faculty and students
7	This programme will proactively build strong relationships with corporates and utilize network of alumni to open communication channels and seek suggestions on curricula, pedagogy, syllabus and training
8	The Programme will facilitate employment opportunities and also support students to start their own ventures
9	The Programme will facilitate good governance in discharge of responsibilities and execution of policies and programmes

5.5. 4 Programme Learning Outcomes

2.1.1. Intended Learning Outcomes	
1	The student will be able to **demonstrate** and **apply** concepts of Microbiology in multi-disciplinary context and critically **analyze** microbiological principles in biosciences and biotechnology
2	The student will be able to **use** various aspects of learning to meet research and industry requirements benchmarked on global standards
3	The student will be able to **use** various modern tools and techniques to **demonstrate** intellectual capital by conducting independent research
4	The student will be able to **apply** new knowledge through experimental methods, Ability to identify, define, investigate, and **analyze** the experimental data, and interpret results for driving optimum solutions
5.	The student will be able to **demonstrate** ethical code of conduct
6	The student will be able to **interpret** cultural diversity and develop responsibility for society and

	environment
7	The student will be able to **develop** links with alumni and industry
8	The student will be able to **apply** the taught concepts in employment and entrepreneurship
9	The student will be able to **apply** principles of good governance and perform effectively, individually and as a team member
10	The student will be able to **demonstrate** the habit of lifelong learning
11	The student will be able to **use** scientific values to **develop** learning outcomes
12	The student will be able to **apply** learning practices to **develop** experimentation approach to implement knowledge

5.5.5 Programme Operational Outcomes

Operational Outcomes	
1	The programme will **select** appropriate methodology and pedagogical tools for teaching, learning and development
2	The programme will be **assessed** in a relevant manner to meet research and industry requirements and benchmarked on global standards by incorporating feedback from all the stakeholders
3	The programme will **organize** research internship and dissertation for innovation and intellectual growth of faculty and students
4	The student of programme will **apply** the achievements at intra and inter-university level of extra-curricular activities
5	The programme will **adapt** value added courses and environmental microbiology as a part of academic curriculum
6	The programme will **identify** opportunities for research collaborations and invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure
7	The programme will effectively **demonstrate** and maintain strong relationship with research and academic institutes for joint collaborative research and consultancies in the field of Microbiology
8	This programme will **identify** students to obtain practical experience and knowledge to get employment or start their own ventures
9	The programme will **devise** good governance practices among faculty, students and staff

5.5.6 Programme Educational Outcome Assessment for M.Sc. Microbiology

Sl. No.	**PEO's**	**PLO's**	**Direct**	**Tool No for Direct Assessment**	**Target Performance**	**Indirect**	**Tool No for Indirect Assessment**	**Target Performance**
1	The student shall be able to **demonstrate** the advanced knowledge and skills to integrate principles of Microbiolog	The student will **demonstrate** and **apply** concepts of Microbiology in multi-disciplinary context and critically **analyze** microbiological	Comprehensive Exam	PG/PLO/ CE Framework	80% students shall pass the exam	Student Exit Survey	PG/PLO/ Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit

Sl. No.	PEO's	PLO's	Direct	Tool No for Direct Assessment	Target Performance	Indirect	Tool No for Indirect Assessment	Target Performance
	y to achieve academic excellence	principles in biosciences and biotechnology						Survey
2	The student shall be able to **use** various aspects of learning and achieve holistic development.	The student will **use** various aspects of learning to meet research and industry requirements and benchmarked on global standards	Self Work Summer Internship, Dissertation	PG/PLO / Dissertation	100% students will undertake and complete the dissertation	Feedback of Industry Internship Guide	PG/PLO/ Exit Survey	The Industry Internship Guide rates the students between 4-5 range on the Likert Scale in the feedback.
3	Students shall be able to **demonstrate** intellectual capital by conducting independent research & development using modern methods/tools of microbial technology	The student will **use** various modern tools and techniques to **demonstrate** intellectual capital by conducting independent research	Summer Internship, Dissertation, Viva-voce Comprehensive Exam	PG/PLO / Dissertation PG/PLO /CE Framework	100% students will undertake and complete the dissertation	Feedback of Industry Internship Guide	PG/PLO/ Exit Survey	The Industry Internship Guide rates the students between 4-5 range on the Likert Scale in the feedback.
4	The student shall be able to **demonstrate** research capability by performing research based project work/dissertation in national and international microbiolog	The student will **apply** new knowledge through experimental methods, Ability to identify, define, investigate, and **analyze** the experimental data, and interpret results for driving optimum solutions	Bio-analytical techniques Comprehensive Exam	PG/PLO /CE Framework	100% students shall be able to demonstrate microbiological tools in order to complete their research project	Student Exit Survey	PG/PLO/ Exit Survey	80% students' response range between 4-5 on the Likert Scale in the Student Exit Survey

Sl. No.	PEO's	PLO's	Direct	Tool No for Direct Assessment	Target Performance	Indirect	Tool No for Indirect Assessment	Target Performance
	y laboratories of repute							
5	The student shall be able to **demonstrate** core values of the university and demonstrate ethical conduct	The student will **demonstrate** ethical code of conduct	Comprehensive Exam	PG/PLO/CE Frame work	100% NTCC reports will be checked for plagiarism which should return similarity index below 15%.	Student Exit Survey	PG/PLO/ Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey
6	The student shall be able to **interpret** cultural diversity and the consequent responsibilities in relation to the society and environment.	The student will **interpret** cultural diversity and develop responsibility for society and environment	Communication skills Comprehensive Exam	PG/PLO 5/ BC PG/PLO/CE Frame work	80% students should secure a grade of 6 and above on a 10-point scale in the presentation component of communication skills course	Student Exit Survey	PG/PLO/ Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.
7	The student shall be able to **demonstrate** networking skills and establish links with industries and alumni	The student will **plan** links with alumni and industry.	Behavioural Science Course Result of all semesters Comprehensive Exam	PG/PLO /BS PG/PLO/CE Frame work	80% students should secure a grade of 6 and above on a 10-point scale in the Journal for Success compone	Student Exit Survey	PG/PLO/ Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.

Sl. No.	PEO's	PLO's	Direct	Tool No for Direct Assessment	Target Performance	Indirect	Tool No for Indirect Assessment	Target Performance
					nt of Behavioural Science course			
8	The student shall be able to **interpret** taught concepts to design and undertake practical and professional work thereby improving employment and entrepreneurial skills.	The student will **apply** the taught concepts in employment and entrepreneurship	Bio-analytical techniques Comprehensive Exam	PG/PLO/CE Framework	100% students' participation in term papers and project report preparation.	Student Exit Survey	PG/PLO/ Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.
9	The student shall be able to **apply** good governance, in terms of value addition and functioning	The student will **apply** principles of good governance and perform effectively individually and as a team member	Plagiarism Checking of Dissertation Comprehensive Exam	PG/PLO/CE Framework	100% NTCC reports will be checked for plagiarism which should return similarity index below 15%.	Feedback of Industry Internship Guide Indiscipline Cases	PG/PLO/ Exit Survey	The Industry Internship Guide rates the students between 4-5 range on the Likert Scale in the feedback. Zero tolerance towards use of unfair means
10	The student shall be able to **evaluate** and reflect the habit of lifelong learning.	The student will **demonstrate** the habit of lifelong learning	Viva-voce, Dissertation Comprehensive Exam	PG/PLO/ Disssertation PG/PLO/CE	100% students submit the research report and 50% students	Student Exit Survey	PG/PLO/ Exit Survey	80% students response range between 4-5 on the Likert Scale in

Sl. No.	PEO's	PLO's	Direct	Tool No for Direct Assessment	Target Performance	Indirect	Tool No for Indirect Assessment	Target Performance
				Frame work	should secure a grade of 6 and above on a 10-point scale			the Student Exit Survey
					Mentors will assess the Learning curve of 100% students	Student Exit Survey	PG/PLO/ Exit Survey	80% students response range between 4-5 on the Likert Scale in the Alumni Survey
					100 % students will elaborate their research findings through presentations and will defend the viva voce	Student Exit Survey	PG/PLO/ Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.
11	The student shall be able to **apply** scientific skills to implement translational approaches	The student will be able to **use** scientific values to **develop** learning outcomes	Comprehensive Exam	UG/PLO7/ CE Frame work	100% students' participation in self work component	Student Exit Survey	UG /PLO/ Exit Survey	80% students' response range between 4-5 on the Likert Scale in the Student Exit Survey

Sl. No.	PEO's	PLO's	Direct	Tool No for Direct Assessment	Target Performance	Indirect	Tool No for Indirect Assessment	Target Performance
12	The student shall be able to **develop** learning outcomes for further enhancement of knowledge	The student will be able to **apply** learning practices to **develop** experimentation approach to implement knowledge	Comprehensive Exam	UG/PLO7/ CE Framework	100% students' participation in self work component	Student Exit Survey	UG /PLO/ Exit Survey	80% students' response range between 4-5 on the Likert Scale in the Student Exit Survey

5.5. 7 Mapping of Intended Programme Learning Outcomes to Broad-Based Programme Educational Objectives (PEOs)

The broad-based student learning goals identified in Section I above encompass the intended student learning outcomes as articulated in this section, and are general composites or summaries of these outcomes. These relationships are summarized in the outcomes-to-goals mapping below (**Note: √ in a given cell of the table indicates the intended learning outcome in that row is associated with the learning goal in that column**.):

(PEOs) / PLOs	PEO 1	PEO 2	PEO 3	PEO4	PEO5	PEO6	PEO7	PEO8	PEO9	PEO10	PEO11	PEO12
MASTER'S LEVEL PROGRAMS – M.SC. MICROBIOLOGY												
Name of the programme												
Learning Outcome 1	√	√	√				√	√				
Learning Outcome 2	√			√	√				√	√		
Learning Outcome 3		√									√	√
Learning Outcome 4			√					√	√			
Learning Outcome 5	√				√	√						
Learning Outcome 6			√				√	√				
Learning Outcome 7	√							√	√			
Learning Outcome 8	√	√		√	√							
Learning Outcome 9	√								√	√		
Learning Outcome 10		√	√		√	√					√	√
Learning	√		√					√	√			

(PEOs) PLOs	PEO 1	PEO 2	PEO 3	PEO4	PEO5	PEO6	PEO7	PEO8	PEO9	PEO10	PEO11	PEO12
Outcome 11												
Learning Outcome 12	√	√	√						√	√		

5.6. Amity Institute of Marine Science and Technology (AIMST)

Programme – B. Sc. (H) Marine Science

5.6.1 Mission Statement

Programme Mission
"To provide basic education in the area of Marine Science, related areas of applied science, humanity related areas and in the Futuristic and emerging frontier areas of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong yearning for perfection and imbibe attributes of courage of conviction and action".

5.6.2 Programme Educational Objectives (PEOs)

Educational Goals
PEO 1: The student shall be able to develop knowledge and skills to integrate principles of Marine science and allied areas to achieve academic excellence
PEO 2: The student shall demonstrate research skills and conduct innovative research in thrust areas benefitting society which shall enhance the intellectual capital in the area of marine science.
PEO 3: The student of AIMST shall be able to use and apply latest IT tools to analyze and interpret scientific data.
PEO 4: The student shall be able to comprehend and interpret research in Marine science and related areas in order to solve scientific problems
PEO 5: The student shall be able to develop effective communication skills to enhance interpersonal relationship.
PEO 6: The student shall be able to develop leadership and entrepreneurial skills and perform responsibly as an individual as well as in a team while maintaining accountability and output.
PEO 7: The student shall be able to develop global citizenship skills to build a sustainable world
PEO 8: The student shall demonstrate ethical behaviour and develop sensitivity towards coastal environment and culturally sensitive issues of the society.
PEO 9: The student shall develop networking skills and build a strong network with the industry and alumni
PEO 10: The students of shall be able to evaluate and reflect habit of lifelong learning.
PEO 11: The student shall be able to recognize the need for environmental conservation and develop sustainable technologies
PEO 12: The student of AIMST shall be able to integrate various aspects of learning and achieve holistic development

5.6.3 Programme Operational Objectives

Operational Goals
1 B.Sc. (H) Marine Science will **create** appropriate teaching learning resources, infrastructure and

	conducive environment for excellence in teaching, learning, research and professional development of students
2	Program will **provide** Professional development opportunities to the faculty and staff to regularly upgrade their knowledge and skills and bring excellence in teaching, learning and research
3	Programme will **demonstrate** sensitivity to the diverse needs of students and accordingly develop facilities and services.
4	Program will continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry
5	Program will continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.
6	Programme will **arrange all necessary** support system for the students of all the programs to facilitate campus recruitment, higher education or starting their own ventures.
7	Programme will **act** ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
8	Programme will **create** opportunities for international exposure for its students and faculty.

5.6.4 Programme Learning Outcomes

Intended Learning Outcomes	
PLO 1	Student will be able to demonstrate and understanding of the various components of Marine Science with Fundamental knowledge of Basic Science and Applied Science.
PLO 2	Student will be able to outline the problem on the basis of principles of Marine Science and Basic Science.
PLO 3	Student will be able to show skills for practical solution in the area of Marine Science.
PLO 4	Student will be able to recite new knowledge and opportunities for leaning through the process of research and enquiry.
PLO 5	Student will be able to demonstrate skills in explaining clearly, communicating in a team, presenting to a growth.
PLO 6	Student will use skills for working independently as well as team to achieve goals.
PLO 7	Student will be able to use and apply appropriate tools, techniques and resources for understanding of the Marine eco-system.
PLO 8	Student will be able to state ethical reasoning and ethical issues associated with current Marine Science Research.
PLO 9	Students will be able to apply skills to plan, execute and conclude a research project in the area of Marine Science
PLO 10	Student will identify the need to engage in independent and life long leaning in the context of scientific development in the area of Marine Science.
PLO 11	Student will be able to apply knowledge gained for the environmental conservation and restoration with sustainable development.
PLO 12	Student will be able to define social structure, issues and the solutions by the knowledge from humanity related subjects.

5.6.5 Programme Operational Outcomes

Operational Outcomes	
1	Program will promote use of appropriate methodology and pedagogical tools for teaching, learning and development.

2	The curriculum will be contemporary and relevant to meet research and industry requirements and benchmarked on global standards by incorporating feedback from all the stakeholders.
3	The student of AIMST will graduate in the stipulated time period
4	Programme willl provide academic facilities, technological Resources for teaching and learning at AIMST
5	The student of AIMST will earn achievements in intra and inter-university Extra Curricular activities.
6	Faculty and students will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing body of Knowledge.
7	AIMST will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff.
8	AIMST will facilitate cultivation of cultural and environmental conservation values among students.
9	AIMST shall develop and maintain strong relationship with research institutes, alumni and industry.
10	AIMST will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure and will support all the students for quality placements or join family business or start their own venture
12	AIMST shall establish an internal quality cell for operational quality and process improvement.

5.6.6 Programme Educational Outcome Assessment for B. Sc. (H) Marine Science

Sl. No.	PEO's	PLO's	Direct	Tool No for Direct Assessment	Target Performance	Indirect	Tool No for Indirect Assessment	Target Performance
1	The student shall be able to develop knowledge and skills to integrate principles of Marine science and allied areas to achieve academic excellence	Student will be able to demonstrate and understanding of the various components of Marine Science with Fundamental knowledge of Basic Science and Applied Science.	*Comprehensive Exam	UG/PLO1/CE Framework	70% students shall pass the exam.	Student Exit Survey	UG/PLO/Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.
2	The student shall demons	Student will be able to outline	Term Paper, Sum	UG/PLO2/TP/SI/VV UG/PLO1/CE	100% students will undertak	Feedback industry		The Industry Internship Guide

	trate research skills and conduct innovative research in thrust areas benefitting society which will enhance the intellectual capital in the area of marine science.	the problem on the basis of principles of Marine Science and Basic Science.	mer Internship, Viva-voce Comprehensive exam	Framework	e and complete the dissertation	internship guide		rates the students between 4-5 range on the Likert Scale in the feedback.
3	The student of AIMST shall be able to use and apply latest IT tools to analyze and interpret scientific data.	Student will be able to show skills for practical solution in the area of Marine Science	*Comprehensive Exam	UG/PLO3/CE Framework	100% students shall able to leverage IT in order to complete their Assignements and Projects	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
4	The student shall be able to comprehend and interpret research in Marine science and related areas in order to solve	Student will be able to recite new knowledge and opportunities for leaning through the process of research and enquiry.	*Major project Rubrics *Comprehensive Exam	UG/PLO4/ UG/PLO3/CE Framework	80% students shall able to demonstrate Problem Solving and Decision Making Skill	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey..

	scientific problems							
5	The student shall be able to develop effective communication skills to enhance interpersonal relationship.	Student will be able to demonstrate skills in explaining clearly, communicating in a team, presenting to a growth.	*Rubrics (Communication skills) *Comprehensive Exam	UG/PLO5/ C UG/PLO3/CE Framework	80% students should secure a grade of 6 and above on a 10-point scale in the presentation component of communication course.	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey..
6	The student shall be able to develop leadership and entrepreneurial skills and perform responsibly as an individual as well as in a team while maintaining accountability and output.	Student will use skills for working independently as well as team to achieve goals.	*Rubrics *Comprehensive Exam	UG/PLO6/ UG/PLO3/CE Framework	80% students should secure a grade of 6 and above on a 10-point scale in the Journal for Success component of Behavioural Science course.	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
7	The student shall be able to develop global citizenship skills to build a sustaina	Student will be able to use and apply appropriate tools, techniques and resourc	Major project rubrics *Comprehensive Exam	UG/PLO7/ UG/PLO3/CE Framework	100% students' participation in term papers and project report preparation.	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.

	ble world	es for understanding of the Marine eco-system.						
8	The student shall demonstrate ethical behaviour and develop sensitivity towards coastal environment and culturally sensitive issues of the society.	Student will be able to state ethical reasoning and ethical issues associated with current Marine Science Research.	*Plagiarism Checking of Major project Rubrics (Behavioural Science)		100% Students are checked for plagiarism in NTCC report submissions and are allowed to appear for viva-voce upon obtaining plagiarism % below 15%.	Feedback industry internship guide		The Industry Internship Guide rates the students between 4-5 range on the Likert Scale in the feedback.
9	The student shall develop networking skills and build a strong network with the industry and alumni	Students will be able to apply skills to plan, execute and conclude a research project in the area of Marine Science	Rubrics (Behavioural Science) *Comprehensive Exam	UG/PLO9/ UG/PLO9/CE Framework	100% students submit the research report and 50% students should secure a grade of 6 and above on a 10-point scale.	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
10	The students of shall be able to evaluate and reflect habit of lifelong learning.	Student will identify the need to engage in independent and life long leaning	*Major project Rubrics *Comprehensive Exam	UG/PLO9/CE Framework	Mentors will asses the Learning curve of 100% students.	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey..

		in the context of scientific development in the area of Marine Science.						
11	The student shall be able to recognize the need for environmental conservation and develop sustainable technologies	Student will be able to apply knowledge gained for the environmental conservation and restoration with sustainable development.	*Comprehensive Exam	UG/PLO11/CE Framework	100 % students will elaborate their research findings through presentations and will defend the viva voce	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
12	The student of AIMST shall be able to integrate various aspects of learning and achieve holistic development	Student will be able to define social structure, issues and the solutions by the knowledge from humanity related subjects.	Term Paper,* Comprehensive Exam	UG/PLO12/CE Framework	100% students will present the seminar and 50% students should secure a grade of 6 and above on a 10-point scale.		UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey..

5.6.7 Mapping of Intended Programme Learning Outcomes to Broad-Based Programme Educational Objectives (PEOs)

The broad-based student learning goals identified in Section I above encompass the intended student learning outcomes as articulated in this section, and are general composites or summaries of these outcomes. These relationships are summarized in the outcomes-to-goals mapping below (**Note: √ in a given cell of the table indicates the intended learning outcome in that row is associated with the learning goal in that column**.):

(PEOs) / PLOs	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PEO7	PEO 8	PEO 9	PEO 10	PEO 11	PEO 12
BACHELOR'S LEVEL PROGRAMS												
Name of the programme : B.Sc (H) Marine Science												
Learning Outcome 1	X		X									
Learning Outcome 2	X		X	X								
Learning Outcome 3	X			X								
Learning Outcome 4		X	X									
Learning Outcome 5		X				X	X	X				
Learning Outcome 6		X					X	X				
Learning Outcome 7								X				
Learning Outcome 8			X		X							
Learning Outcome 9				X								
Learning Outcome 10		X							X	X		
Learning Outcome 11					X						X	
Learning Outcome 12		X			X				X			X

5.7 Amity Institute of Virology and Immunology (AIVI)

Programme –M. Sc. Immunology

5.7.1 Mission Statement

Programme Mission
To provide advanced education in the area of immunology and in the futuristic and emerging frontier areas of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong, yearning for perfection and courage of conviction and action.

5.7.2 Programme Educational Objectives (PEOs)

Educational Goals	
1.	The student shall develop knowledge of Immunology, potentially utilized for life science research.
2.	The student shall be able to employ skills for exploration and investigation of problems in

	Immunology.
3.	The student shall design new biological solutions (workbench/algorithms) and analyze systematically the complex and specialized concepts in Immunology.
4.	The student shall develop and investigate Immunology based research projects.
5.	The students shall develop good communication and develop networking skills and establish links with industry and alumni.
6.	The student shall be able to demonstrate effectiveness and responsibility as an individual as well as in a team while maintaining accountability and output.
7.	To student shall be oriented to be a responsible global citizen.
8.	The student shall demonstrate knowledge of the ethical principles, law and IPR issues.
9.	The student shall extend short term trainings and dissertation projects in the area of Bioinformatics in various national or international laboratories for experiential learning.
10.	The student shall be able to use good managerial skills to enhance employment and entrepreneurship opportunities and able to create the virtue of lifelong learning.
11.	The student shall be able to create and develop thought process for environmental conservation by developing and implementing environmentally sustainable technologies.
12.	The student shall be able to apply both theoretical as well as practical concepts for the betterment of the society.

5.7.3 Programme Operational Objectives

Operational Goals	
1.	MSc. Immunology programme will create appropriate resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students.
2.	The programme will provide opportunities and environment for innovation and research excellence for the intellectual growth of faculty and students.
3.	The programme will demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
4.	The programme will continuously strive to build strong industry interaction, alumni networks and empanelment of expertise from industry while proactively seeking suggestions on curricula and training.
5.	The programme will continually improve processes and systems with an aim to attain national and international accreditations.
6.	The programme will extend support to the students in order to facilitate campus recruitment, higher education or starting their own ventures.
7.	The programme will act ethically to ensure transparency and good governance while discharging various responsibilities to its stakeholders and execution of policies and programs.
8.	The programme will create opportunities for international exposure for its students and faculty.

5.7.4 Programme Learning Outcomes

Intended Learning Outcomes	
1.	The student will develop critical thought and practical understanding in the field of Immunology and ability to use knowledge and skills and work towards academic excellence.

2.	The student will be able to explore and investigate a devise solution to a range of complex scientific problems of technical, conceptual or abstract nature.
3.	The student will design, identify and review systematically and critically appraise specialized concepts in theoretical and applied aspects of Immunology.
4.	The student will be able to relate research principles and technical skills to plan and execute Immunology research projects.
5.	The student will develop appropriate level of communication skills to effectively disseminate research and technical information.
6.	The student will create the ability to work independently as individuals and flexibly within a team with effectiveness and responsibility.
7.	The student will be oriented to be responsible global citizen.
8.	The student will be able to apply ethical principles in handling various issues concerning Immunology.
9.	The student will apply principles of project management to manage one's own work and/or project work as a member or a leader in a team, by work experience gathered through short term training / dissertation projects.
10.	The student will organize the role of personal development, self-directed study and discovery in learning to develop life-long learning.
11.	The student will be able to implement conservation of environment by using newer and better sustainable technologies.
12.	The student will integrate theory, technical information and appropriate research methods for advancement of science and society.

5.7.5 Programme Operational Outcomes

Operational Goals	
1.	MSc. Immunology programme will create appropriate resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students.
2.	The programme will provide opportunities and environment for innovation and research excellence for the intellectual growth of faculty and students.
3.	The programme will demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
4.	The programme will continuously strive to build strong industry interaction, alumni networks and empanelment of expertise from industry while proactively seeking suggestions on curricula and training.
5.	The programme will continually improve processes and systems with an aim to attain national and international accreditations.
6.	The programme will extend support to the students in order to facilitate campus recruitment, higher education or starting their own ventures.
7.	The programme will act ethically to ensure transparency and good governance while discharging various responsibilities to its stakeholders and execution of policies and programs.
8.	The programme will create opportunities for international exposure for its students and faculty.

5.7.6 Programme Educational Outcome Assessment Plan for M. Sc. Immunology

Sl. No.	PEO	PLO	Direct	Tool No. for Direct Assessment	Target	Indirect	Tool No. for Indirect Assessment	Target
1	The student shall develop knowledge of immunology, potentially utilized for life science research.	The student will develop critical thought and practical understanding in the field of immunology and ability to use knowledge and skills and work towards academic excellence.	*Comprehensive Exam	PG/PLO1/CE Framework	70% students shall pass the exam.	Student Exit Survey	PG/PLO/Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.
2	The student shall be able to employ skills for exploration and investigation of problems in immunology.	The student will be able to explore and investigate a devise solutions to a range of complex scientific problems of technical, conceptual or abstract nature.	Term Paper, Summer Internship, Dissertation rubrics, Viva-voce	PG/PLO2/Dissertation	100% students will undertake and complete the dissertation	Feedback analysis of internship guide		The Industry Internship Guide rates the students between 4-5 ranges on the Likert Scale in the feedback.
			*Comprehensive Exam	PG/PLO2/CE Framework				
3	The student shall design	The student	*Comprehensive	PG/PLO3/CE Framework	100% students	Student	PG/PLO	80% student

	new biological solutions (workbench/algorithms) and analyze systematically the complex and specialized concepts in immunology.	will design, identify and review systematically and critically appraise specialized concepts in theoretical and applied aspects of immunology.	Exam		shall be able touse technology in order to complete their Assignments and Projects	Exit Survey	/Exit Survey	s' response range between 4-5 on the Likert Scale in the Student Exit Survey.
4	The student shall develop and investigate immunology based research projects.	The student will be able to relate research principles and technical skills to plan and execute immunology research projects.	*Comprehensive Exam	PG/PLO4/CE Framework	80% students shall able to demonstrate Problem Solving and Decision Making Skill	Student Exit Survey	PG/PLO/Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.
5	The students shall develop good communication and develop networking skills and establish links with industry and alumni.	The student will develop appropriate level of communication skills to effectively disseminate research and technical information.	*Seminar presentations/ Viva-voce /		80% students should secure a grade of 6 and above on a 10-point scale in the presentation component of communication course.	Student Exit Survey	PG/PLO/Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.
			*Rubrics Communication skills	PG/PLO5/ BC				
			*Comprehensive Exam	PG/PLO5/CE Framework				
6	The student shall be able to demonstrate effectiveness	The student will create the			80% students should secure a	Student Exit Surve	PG/PLO/Exit	80% students respons

	and responsibility as an individual as well as in a team while maintaining accountability and output.	ability to work independently as individuals and flexibly within a team with effectiveness and responsibility.	*Rubrics	PG/PLO6/BS	grade of 6 and above on a 10-point scale in the Journal for Success component of Behavioural Science course.	y	Survey	e range between 4-5 on the Likert Scale in the Student Exit Survey.
			* Comprehensive Exam	PG/PLO6/CE Framework				
7	The student shall be oriented to be responsible global citizen.	The student will be oriented to be responsible global citizen.	* Comprehensive Exam		100% students' participation in term papers and project report preparation.	Student Exit Survey	PG/PLO/Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.
				UG/PLO7/CE Framework				
8	The student shall demonstrate knowledge of the ethical principles, law and IPR issues.	The student will be able to apply ethical principles in handling various issues concerning immunology and life sciences.	*Plagiarism Checking of Dissertation		100% Students are checked for plagiarism in NTCC report submissions and are allowed to appear for viva-voce upon obtaining plagiarism % below 15%.	Feedback industry internship guide		The Industry Internship Guide rates the students between 4-5 range on the Likert Scale in the feedback.
			* Comprehensive Exam	PG/PLO8/CE Framework				The University will adhere to zero tolerance towards

								use of unfair means
9	The student shall extend short term trainings and dissertation projects in the area of immunology in various national or international laboratories.	The student will apply principles of project management to manage one's own work and/or project work as a member or a leader in a team, by work experience gathered through short term training / dissertation projects.	*Term paper, viva-voce, *Rubrics(Dissertation)	PG/PLO9/	100% students submit the research report and 50% students should secure a grade of 6 and above on a 10-point scale.	Student Exit Survey	PG/ PLO / Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.
			*Comprehensive Exam	PG/PLO9/CE Framework		Alumni Survey	PG/ PLO / Alumni Survey	80% alumni response range between 4-5 on the Likert Scale in the Alumni Survey.
10	The student shall demonstrate good managerial skills to enhance employment and entrepreneurship opportunities and able to create the virtue of lifelong learning.	The student will organize the role of personal development, self-directed study and discovery in learning to develop life-long learning.			Mentors will asses the Learning curve of 100% students.	Student Exit Survey	PG/ PLO /Exit Survey	80% students response range between 4-5 on the Likert Scale in the Alumni Survey.
			*Comprehensive Exam	PG/PLO10/CE Framework				

11	The student shall create and spread the thought-process for care of the environment by development of environmentally sustainable technologies.	The student will be able to implement conservation of environment by using newer and better sustainable technologies.	*Comprehensive Exam	PG/PLO11/CE Framework	100 % students will elaborate their research findings through presentations and will defend the viva voce	Student Exit Survey	PG/ PLO / Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.
12	The student shall be able to apply both theoretical as well as practical concepts for the betterment of the society.	The student will integrate theory, technical information and appropriate research methods for advancement of science and society.	*Comprehensive Exam	PG/PLO12/CE Framework	100% students will present the seminar and 50% students should secure a grade of 6 and above on a 10-point scale.	Student Exit Survey	PG/ PLO / Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.

5.7.7 Mapping of Assessment Measures to Intended Student Learning Outcomes

The broad-based student learning goals identified in Section I above encompass the intended student learning outcomes as articulated in this section, and are general composites or summaries of these outcomes. These relationships are summarized in the outcomes-to-goals mapping below (**Note: √ in a given cell of the table indicates the intended learning outcome in that row is associated with the learning goal in that column**.):

Matrix Of PEO`s and PLO`s

PEO/PLO	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PEO 7	PEO 8	PEO 9	PEO 10	PEO 11	PEO 12
PLO 1	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
PLO 2	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☑
PLO 3	☐	☑	☑	☑	☐	☐	☑	☐	☐	☐	☐	☐
PLO 4	☑	☐	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐
PLO 5	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐

PLO 6	☐	☐	☐	☐	☑	☑	☐	☐	☑	☐	☐	☐
PLO 7	☑	☐	☑	☑	☐	☐	☑	☑	☐	☐	☐	☐
PLO 8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐
PLO 9	☑	☐	☐	☐	☐	☑	☐	☐	☑	☐	☐	☐
PLO 10	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐
PLO 11	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐
PLO 12	☑	☑	☑	☑	☐	☐	☑	☐	☐	☐	☐	☑

5.8 Amity Institute of Virology and Immunology (AIVI)

Programmes: M. Sc. Virology.

5.8. 1 Mission Statement

Programme Mission
To provide advanced education in the area of virology and in the futuristic and emerging frontier areas of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong, yearning for perfection and courage of conviction and action.

5.8 .2 Programme Educational Objectives (PEOs)

Educational Goals	
1.	The student shall develop knowledge of Virology, potentially utilized for life science research.
2.	The student shall be able to employ skills for exploration and investigation of problems in Virology.
3.	The student shall design new biological solutions (workbench/algorithms) and analyze systematically the complex and specialized concepts in Virology.
4.	The student shall develop and investigate Virology based research projects.
5.	The students shall develop good communication and develop networking skills and establish links with industry and alumni.
6.	The student shall be able to demonstrate effectiveness and responsibility as an individual as well as in a team while maintaining accountability and output.
7.	To student shall be oriented to be a responsible global citizen.
8.	The student shall demonstrate knowledge of the ethical principles, law and IPR issues.
9.	The student shall extend short term trainings and dissertation projects in the area of Bioinformatics in various national or international laboratories for experiential learning.
10.	The student shall be able to use good managerial skills to enhance employment and entrepreneurship opportunities and able to create the virtue of lifelong learning.
11.	The student shall be able to create and develop thought process for environmental conservation by developing and implementing environmentally sustainable technologies.
12.	The student shall be able to apply both theoretical as well as practical concepts for the betterment of the society.

5.8 .3 Programme Operational Objectives

Operational Goals	
1.	M. Sc. Virology programme will create appropriate resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students.
2.	The programme will provide opportunities and environment for innovation and research excellence for the intellectual growth of faculty and students.
3.	The programme will demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
4.	The programme will continuously strive to build strong industry interaction, alumni networks and empanelment of expertise from industry while proactively seeking suggestions on curricula and training.
5.	The programme will continually improve processes and systems with an aim to attain national and international accreditations.
6.	The programme will extend support to the students in order to facilitate campus recruitment, higher education or starting their own ventures.
7.	The programme will act ethically to ensure transparency and good governance while discharging various responsibilities to its stakeholders and execution of policies and programs.
8.	The programme will create opportunities for international exposure for its students and faculty.

5.8.4 Programme Learning Outcomes

Intended Learning Outcomes	
1.	The student will develop critical thought and practical understanding in the field of virology and ability to use knowledge and skills and work towards academic excellence.
2.	The student will be able to explore and investigate a devise solution to a range of complex scientific problems of technical, conceptual or abstract nature.
3.	The student will design, identify and review systematically and critically appraise specialized concepts in theoretical and applied aspects of virology.
4.	The student will be able to relate research principles and technical skills to plan and execute virology research projects.
5.	The student will develop appropriate level of communication skills to effectively disseminate research and technical information.
6.	The student will create the ability to work independently as individuals and flexibly within a team with effectiveness and responsibility.
7.	The student will be oriented to be responsible global citizen.
8.	The student will be able to apply ethical principles in handling various issues concerning virology.
9.	The student will apply principles of project management to manage one's own work and/or project work as a member or a leader in a team, by work experience gathered through short term training / dissertation projects.
10.	The student will organize the role of personal development, self-directed study and discovery in learning to develop life-long learning.
11.	The student will be able to implement conservation of environment by using newer and better sustainable technologies.

12.	The student will integrate theory, technical information and appropriate research methods for advancement of science and society.

5.8.5 Programme Operational Outcomes

Operational Goals	
1.	M. Sc. Virology programme will create appropriate resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students.
2.	The programme will provide opportunities and environment for innovation and research excellence for the intellectual growth of faculty and students.
3.	The programme will demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
4.	The programme will continuously strive to build strong industry interaction, alumni networks and empanelment of expertise from industry while proactively seeking suggestions on curricula and training.
5.	The programme will continually improve processes and systems with an aim to attain national and international accreditations.
6.	The programme will extend support to the students in order to facilitate campus recruitment, higher education or starting their own ventures.
7.	The programme will act ethically to ensure transparency and good governance while discharging various responsibilities to its stakeholders and execution of policies and programs.
8.	The programme will create opportunities for international exposure for its students and faculty.

5.8.6 Programme Educational Outcome Assessment for M. Sc. Virology

Sl. No.	**PEO**	**PLO**	**Direct**	**Tool No. for Direct Assessment**	**Target**	**Indirect**	**Tool No. for Indirect Assessment**	**Target**
1	The student shall develop knowledge of virology, potentially utilized for life science research.	The student will develop critical thought and practical understanding in the field of virology and	*Comprehensive Exam	PG/PLO1/CE Framework	70% students shall pass the exam.	Student Exit Survey	PG/PLO/Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.

		ability to use knowledge and skills and work towards academic excellence.						
2	The student shall be able to employ skills for exploration and investigation of problems in virology.	The student will be able to explore and investigate a devise solutions to a range of complex scientific problems of technical, conceptual or abstract nature.	Term Paper, Summer Internship, Dissertation rubrics, Viva-voce	PG/PLO2/Dissertation	100% students will undertake and complete the dissertation	Feed back analysis of internship guide		The Industry Internship Guide rates the students between 4-5 ranges on the Likert Scale in the feedback.
			*Comprehensive Exam	PG/PLO2/CE Framework				
3	The student shall design new biological solutions (workbench/algorithms) and analyze systematically the complex and specialized concepts in virology.	The student will design, identify and review systematically and critically appraise specialized concepts in theoretical and applied aspects of virology	*Comprehensive Exam	PG/PLO3/CE Framework	100% students shall be able touse technology in order to complete their Assignments and Projects	Student Exit Survey	PG/PLO/Exit Survey	80% students' response range between 4-5 on the Likert Scale in the Student Exit Survey.

4	The student shall develop and investigate virology based research projects.	The student will be able to relate research principles and technical skills to plan and execute virology research projects.	*Comprehensive Exam	PG/PLO4/CE Framework	80% students shall able to demonstrate Problem Solving and Decision Making Skill	Student Exit Survey	PG/ PLO /Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.
5	The students shall develop good communication and develop networking skills and establish links with industry and alumni.	The student will develop appropriate level of communication skills to effectively disseminate research and technical information.	*Seminar presentations/ Viva-voce /		80% students should secure a grade of 6 and above on a 10-point scale in the presentation component of communication course.	Student Exit Survey	PG/ PLO /Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.
			*Rubrics Communication skills	PG/PLO5/ BC				
			*Comprehensive Exam	PG/PLO5/CE Framework				
6	The student shall be able to demonstrate effectiveness and responsibility as an individual as well as in a team while maintaining accountability and output.	The student will create the ability to work independently as individuals and flexibly within a team with effectiveness and responsibility.			80% students should secure a grade of 6 and above on a 10-point scale in the Journal for Success component of Behavioural Science course.	Student Exit Survey	PG/ PLO /Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.
			*Rubrics	PG/PLO6/BS				
			* Comprehensive Exam	PG/PLO6/CE Framework				

7	The student shall be oriented to be responsible global citizen.	The student will be oriented to be responsible global citizen.	* Comprehensive Exam	UG/PLO7/CE Framework	100% students' participation in term papers and project report preparation.	Student Exit Survey	PG/ PLO /Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.
8	The student shall demonstrate knowledge of the ethical principles, law and IPR issues.	The student will be able to apply ethical principles in handling various issues concerning virology and life sciences.	*Plagiarism Checking of Dissertation		100% Students are checked for plagiarism in NTCC report submissions and are allowed to appear for viva-voce upon obtaining plagiarism % below 15%.	Feedback industry internship guide		The Industry Internship Guide rates the students between 4-5 range on the Likert Scale in the feedback.
			* Comprehensive Exam	PG/PLO8/CE Framework				The University will adhere to zero tolerance towards use of unfair means
9	The student shall extend short term trainings and dissertation projects in the area of virology in various national or	The student will apply principles of project management to manage one's own	*Term paper, viva-voce, *Rubrics(Dissertation)	PG/PLO9/	100% students submit the research report and 50% students should secure a	Student Exit Survey	PG/ PLO / Exit Survey	80% students response range between 4-5 on the Likert

	international laboratories.	work and/or project work as a member or a leader in a team, by work experience gathered through short term training / dissertation projects.			grade of 6 and above on a 10-point scale.			Scale in the Student Exit Survey.
			*Comprehensive Exam	PG/PLO9/CE Framework		Alumni Survey	PG/PLO/Alumni Survey	80% alumni response range between 4-5 on the Likert Scale in the Alumni Survey.
10	The student shall demonstrate good managerial skills to enhance employment and entrepreneurship opportunities and able to create the virtue of lifelong learning.	The student will organize the role of personal development, self-directed study and discovery in learning to develop life-long learning.			Mentors will asses the Learning curve of 100% students.	Student Exit Survey	PG/PLO/Exit Survey	80% students response range between 4-5 on the Likert Scale in the Alumni Survey.
			*Comprehensive Exam	PG/PLO10/CE Framework				
11	The student shall create and spread the thought-process for care of the environment by development of environmentally sustainable technologies.	The student will be able to implement conservation of environment by using newer and better sustainable technologies.	*Comprehensive Exam	PG/PLO11/CE Framework	100 % students will elaborate their research findings through presentations and will defend the viva voce	Student Exit Survey	PG/PLO/Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.

12	The student shall be able to apply both theoretical as well as practical concepts for the betterment of the society.	The student will integrate theory, technical information and appropriate research methods for advancement of science and society.	*Comprehensive Exam	PG/PLO12/CE Framework	100% students will present the seminar and 50% students should secure a grade of 6 and above on a 10-point scale.	Student Exit Survey	PG/PLO/Exit Survey	80% students response range between 4-5 on the Likert Scale in the Student Exit Survey.

5.8. 7 Mapping of Intended Programme Learning Outcomes to Broad-Based Programme Educational Objectives (PEOs)

The broad-based student learning goals identified in Section I above encompass the intended student learning outcomes as articulated in this section, and are general composites or summaries of these outcomes. These relationships are summarized in the outcomes-to-goals mapping below (**Note: √ in a given cell of the table indicates the intended learning outcome in that row is associated with the learning goal in that column**.):

Matrix Of PEO`s and PLO`s

PEO/PLO	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PEO 7	PEO 8	PEO 9	PEO 10	PEO 11	PEO 12
PLO 1	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
PLO 2	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☑
PLO 3	☐	☑	☑	☑	☐	☐	☑	☐	☐	☐	☐	☐
PLO 4	☑	☐	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐
PLO 5	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐
PLO 6	☐	☐	☐	☐	☑	☑	☐	☐	☑	☐	☐	☐
PLO 7	☑	☐	☑	☑	☐	☐	☑	☑	☐	☐	☐	☐
PLO 8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐
PLO 9	☑	☐	☐	☐	☐	☑	☐	☐	☑	☐	☐	☐
PLO 10	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐
PLO 11	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐
PLO 12	☑	☑	☑	☑	☐	☐	☑	☐	☐	☐	☐	☑

5.9 Amity Institute of Molecular Medicine and Stem Cell Research (AIMMSCR)

Programme - M. Sc. in Cellular and Molecular Oncology

5.9.1 Mission Statement

Programme Mission
To provide education at M. Sc. level in Cellular and Molecular Oncology and in the futuristic and emerging frontier areas of knowledge , learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human values , pride in their heritage and culture , a sense of right and wrong and yearning for perfection and imbibe attributes of courage of conviction and action

5.9.2 Programme Educational Objectives (PEOs)

Educational Goals	
1.	The student shall be able to **develop** knowledge and skills to attain academic excellence in the field of cancer biology.
2.	The student shall **demonstrate** research skills to conduct research in the thrust areas of cancer biology to benefit the society.
3.	The student shall be able to **use** and **apply** modern IT tools to analyze the biological data to arrive at logical conclusions.
4.	The student shall be able to **analyze** and **interpret** scientific data to solve technical, conceptual and abstract scientific problems.
5.	The student shall be able to **develop** effective communication skills to disseminate technical information and ability to **write** effective reports and reviews for scientific journals.
6.	The student shall be able to **demonstrate** effectiveness and responsibility as an individual as well as in a team while maintaining accountability and output.
7.	The student shall be able to **develop** global citizenship skills to build a sustainable world community.
8.	The student shall be able to **interpret** principles of ethics and apply them to develop sensitivity towards various social and cultural issues of the society.
9.	The student shall be able **develop** networking and entrepreneurship skills and establish links with industry and alumni.
10.	The student shall be able to **create** the virtue of lifelong learning.
11.	The student shall be able to **create** and **develop** thought process for environmental preservation by developing environmentally sustainable technologies.
12.	The student shall be able to **integrate** various aspects of cancer biology to achieve holistic and societal development.

5.9.3 Programme Operational Objectives

Operational Goals	
1	MSc. CMO programme will create appropriate resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students.
2	The programme will provide opportunities and environment for innovation and research excellence for the intellectual growth of faculty and students.

3	The programme will demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
4	The programme will continuously strive to build strong industry interaction, alumni networks and empanelment of expertise from industry while proactively seeking suggestions on curricula and training.
5	The programme will continually improve processes and systems with an aim to attain national and international accreditations.
6	The programme will extend support to the students in order to facilitate campus recruitment, higher education or starting their own ventures.
7	The programme will act ethically to ensure transparency and good governance while discharging various responsibilities to its stakeholders and execution of policies and programs.
8	The programme will create opportunities for international exposure for its students and faculty.
9	MSc. CMO programme will create appropriate resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students.

5.9.4 Programme Learning Outcomes

1	The student will apply knowledge to develop critical thought and practical understanding of in the field of cancer biology to find solutions for human benefits.
2	The student will identify, formulate, research literature, review existing knowledge and analyze complex molecular and biochemical problems to reach substantiated conclusions using principles of biology.
3	The student will apply modern IT tools for acquisition and analysis of biological data.
4	The student will demonstrate awareness of research principles and technical skills to plan independent Biotechnology research projects.
5	The student will develop appropriate level of communication skills to effectively disseminate research and technical information and shall be able to summarize scientific results; write effective reports and reviews in scientific journals.
6	The student will demonstrate the ability to work independently as individuals and flexibly within a team with effectiveness and responsibility.
7	The student will build skills to evolve into a responsible global citizen.
8	The student will develop sensitivity to environmental issues and concerns and shall understand principles of ethics within the framework and apply these principles for environmentally and culturally sensitive issues.
9	The student will apply management principles to manage one's own work and/or projects and ventures.
10	The student will organize the role of personal development, self-directed study and discovery in learning to develop life-long learning.
11	The student will develop appreciation for nature and the need for its preservation and conservation and demonstrate care for the environment by development of environmentally sustainable technologies.
12	The student will develop the capability to integrate theory, technical information and appropriate research methods for the benefit of society.

5.9.5 Programme Operational Outcomes

Operational Goals	
1	M.Sc. Cellular & Molecular Oncology programme will promote use of appropriate methodology and pedagogical tools for teaching, learning and development.
2	The programme will provide environment for innovation and research and academic facilities, technological resources for teaching and learning to the students.
3	The programme will facilitate resources to cater diverse needs of the students and faculty to achieve academic excellence.
4	The programme will develop and maintain strong relationship with research institutes, alumni and industry.
5	The programme will develop infrastructure and resources to attain national and international accreditations.
6	The programme will extend support to the students to provide employment, avenues for higher education and starting their own ventures.
7	The programme will ensure transparency and good governance by integrating ethics and values in teaching, theory and practice.
8	The programme will invite international delegates and speakers for seminars and conferences and provide various other opportunities for global exposure.
9	M.Sc. Cellular & Molecular Oncology programme will promote use of appropriate methodology and pedagogical tools for teaching, learning and development.

5.9.6 Programme Educational Outcome Assessment for Cellular and Molecular Oncology

Sl. No.	PEO	PLO	Direct	Tool No for Direct Assessment	Target	Indirect	Tool No for Indirect Assessment	Target
1	The student shall be able to develop knowledge and skills to attain academic excellence in the field of Biotechnology.	The student will apply knowledge to develop critical thought and practical understanding of in the field of Biotechnology find solutions for human benefits.	*Comprehensive Exam	PG/PLO1/CE Framework	70% students shall pass the exam.	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.

2	The student shall demonstrate research skills to conduct research in the thrust areas of Biotechnology to benefit the society.	The student will identify, formulate, research literature, review existing knowledge and analyze complex molecular and biochemical problems to reach substantiated conclusions using principles of biology.	Project report submission	PG/PLO2/Dissertation	100% students will undertake and complete the Project report	Feedback of Industry Internship Guide		The Industry Internship Guide rates the students between 3-5 range on the Likert Scale in the feedback.
			*Comprehensive Exam	PG/PLO2/CE Framework				
3	The student shall be able to use and apply modern IT tools to analyze the biological data to arrive at logical conclusions.	The student will apply modern IT tools for acquisition and analysis of biological data.	*Section 3 of Comprehensive Exam	PG/PLO3/CE Framework	70% students shall pass the comprehensive exam	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
4	The student shall be able to analyze and interpret scientific data to solve technical, conceptual and abstract scientific problems.	The student will demonstrate awareness of research principles and technical skills to plan independent Biotechnology research projects.	Project report submission	PG/PLO4/	100% students shall complete their projects and submit the report	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
				PG/PLO4/CE Framework				

5	The student shall be able to develop effective communication skills to disseminate technical information and ability to write effective reports and reviews for scientific journals.	The student will develop appropriate level of communication skills to effectively disseminate research and technical information and shall be able to summarize scientific results; write effective reports and reviews in scientific journals.	*Rubrics Communication skills		80% students shall achieve the minimum of "satisfactory" outcome attainment level	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
				PG/PLO5/ BC				
				PG/PLO5/CE Framework				
6	The student shall be able to demonstrate effectiveness and responsibility as an individual as well as in a team while maintaining accountability and output.	The student will demonstrate the ability to work independently as individuals and flexibly within a team with effectiveness and responsibility.	* Behavioural Science rubrics		80% students shall achieve the minimum of "satisfactory" outcome attainment level	Student Exit Survey	PG/PLO6 /Exit Survey	80% students shall score ≥ 75% in exit survey.
				PG/PLO6/BS				
			* Comprehensive Exam	PG/PLO6/CE Framework				

7	The student shall be able to develop global citizenship skills to build a sustainable world community.	The student will build skills to evolve into a responsible global citizen.	* Rubrics FBL	UG/PLO7/CE Framework	80% students shall achieve the minimum of "satisfactory" outcome attainment level	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
8	The student shall be able to interpret principles of ethics and apply them to develop sensitivity towards various environmental and cultural issues of the society.	The student will develop sensitivity to environmental issues and concerns and shall understand principles of ethics within the framework and apply these principles for environmentally and culturally sensitive issues.	*Plagiarism Checking of project report	PG/PLO8/CE Framework	100% Students are checked for plagiarism in NTCC report submissions and are allowed to appear for viva-voce upon obtaining plagiarism % below 15%.	Feedback of Industry Internship Guide		The Industry Internship Guide rates the students between 3-5 range on the Likert Scale in the feedback.
9	The student shall be able develop networking and entrepreneurship skills and establish links with industry and alumni.	The student will apply management principles to manage one's own work and/or projects and ventures.	Section 7 of comprehensive exam Project report submission	PG/PLO9/	70% students shall pass the exam 100% students shall submit the project reports	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.

10	The student shall be able to create the virtue of lifelong learning.	The student will organize the role of personal development, self-directed study and discovery in learning to develop life-long learning.	*Section 8 of Comprehensive Exam	PG/PLO10/CE Framework	70% students shall pass the exam	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
11	The student shall be able to create and develop thought process for environmental preservation by developing environmentally sustainable technologies.	The student will develop appreciation for nature and the need for its preservation and conservation and demonstrate care for the environment by development of environmentally sustainable technologies.	*Section 9 of Comprehensive Exam	PG/PLO11/CE Framework	70% students shall pass the exam	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
12	The student shall be able to integrate various aspects of biotechnology to achieve holistic and Societal development.	The student will develop the capability to integrate theory, technical information and appropriate research methods for the benefit of	*Comprehensive Exam	PG/PLO12/CE Framework	70% students shall pass the exam	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.

		society.						

5.9.7 Mapping of Intended Programme Learning Outcomes to Broad-Based Programme Educational Objectives (PEOs)

The broad-based student learning goals identified in Section I above encompass the intended student learning outcomes as articulated in this section, and are general composites or summaries of these outcomes. These relationships are summarized in the outcomes-to-goals mapping below (**Note: √ in a given cell of the table indicates the intended learning outcome in that row is associated with the learning goal in that column**.):

Mapping of Assessment Measures to Operational Outcomes

Assessment Tools / Programme Operational Outcomes (example)	Student Feedback	Faculty Qualification	Graduation rate	Co-curricular and Extra Curricular activities	Publications and Professional membership	Attrition rate	Value Added courses	Feedback system	Plagiarism	Community and social sector	Organizing cultural programs	Day of belongingness	Study abroad and exchange program for students)	Accreditation	Seminar/Workshop/Guest lecture/Conference	Placement	Involvement of all stake holders
Programme Operational Outcome 1 M.Sc. CMO programme will promote use of appropriate methodology and pedagogical tools for teaching, learning and development.	**X**	**X**															
Programme Operational Outcome 2 The programme will provide environment for innovation and research and																	**X**

academic facilities, technological resources for teaching and learning to the students..																	
Programme Operational Outcome 3 The programme will facilitate resources to cater diverse needs of the students and faculty to achieve academic excellence.			**X**														
The programme will develop and maintain strong relationship with research institutes, alumni and industry.					**X**												
Programme Operational Outcome 5 The programme will develop infrastructure and resources to attain national and international accreditations.				**X**													
Programme Operational Outcome 6 The programme will extend various opportunities for global exposure and will support all the students for quality					**X**												

placements or join family business or start their own venture																	
Programme Operational Outcome 7 The programme will ensure transparency and good governance by integrating ethics and values in teaching, theory and practice.						**X**	**X**	**X**	**X**								
Programme Operational Outcome 8 The programme will invite international delegates and speakers for seminars and conferences and provide various other opportunities for global exposure.										**X**	**X**	**X**					

5.10 Programme - M. Sc. in Stem Cell Science & Technology

5.10.1 Mission Statement

Programme Mission
To provide education at M. Sc levels in Stem Cell Science and Technology (SST) and in the futuristic and emerging frontier areas of knowledge , learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human values , pride in their heritage and culture , a sense of right and wrong and yearning for perfection and imbibe attributes of courage of conviction and action.

5.10.2 Programme Educational Objectives (PEOs)

1	The students shall be able to develop specialized theoretical and practical knowledge in stem cell science and allied areas
2	The students shall be able to develop in-depth understanding of tissue regeneration
3	The students shall be able to develop ability for analyses and interpretation of scientific data to solve technical, conceptual and abstract scientific problems using modern IT tools
4	The students shall be able to facilitate ability to develop research projects related to various aspects of stem cells

5	The students shall be able to develop effective communication skills to author articles, reports and reviews in order to disseminate technical knowledge and information
6	The students shall be able to develop effectively as an individual as well as a member in a team
7	The students shall be able to solve problems in this specific area of life sciences and by contributing to society exemplify the role of a Global citizen
8	The students shall be able to develop an understanding of ethical conduct of stem cell research
9	The students shall demonstrate applicability of their learning for sustainability and environmental responsibility
10	The student shall be able to integrate advancement of research at the National level with the International level
11	The student shall demonstrate applicability of their learning for sustainability and environmental responsibility
12	The students shall demonstrate capabilities to integrate theory and practice for applied research to develop novel products, processes and technologies in related areas

5.10.3 Programme Operational Objectives

1	M.Sc. (Stem Cell Science and Technology) programme aims to help advance the University's goal of achieving academic excellence by providing valuable resources to students.
2	The programme will facilitate an academically conducive environment for holistic development of students.
3	The institute will provide support for research excellence and facilitate patenting of innovation and subsequent commercialization. This will contribute to increase in intellectual capital of the institute.
4	The programme aims to inculcate core values of the university and ethical conduct amongst students, faculty and staff.
5	The programme will encourage cultural diversity and a sense of social and environmental responsibility.
6	The institute will provide opportunities for international collaborations and exposure to faculty and students.
7	The programme will proactively build strong relationships with corporates and utilize network of alumni to open communication channels and seek suggestions on curricula, pedagogy, syllabus and training.
8	The programme will facilitate employment opportunities and also support students to start their own ventures.
9	The programme will facilitate good governance in discharge of responsibilities and execution of policies and programs.

5.10.4 Programme Learning Outcomes

1	The student will develop theoretical and practical knowledge in all aspects of stem cells
2	The student will develop in-depth understanding of stem cells and their applications
3	The student will develop an ability to evaluate and interpret range of complex technical, conceptual or abstract problems related to stem cells using IT tools
4	The student will develop awareness of research principles and technical skills to plan independent stem cell research. Evaluate and interpret results for advancement of science.
5	The student will develop effective communicate in order to author articles, reports and reviews in order to disseminate technical information
6	The student will demonstrate working as individuals and flexibly within a team with effectiveness and responsibility.
7	The students will solve problems in this specific area of life sciences and by contributing to society exemplify the role of a Global citizen learning.
8	The student will develop appreciation of ethical standards and issues related to stem cell research and their practice in clinical applications.
9	The student will develop comprehension capability to integrate theory, appropriate research methods and technical information and apply to develop new products/technologies.
10	The student will develop the correct viewpoints on latest breakthroughs in stem cell science and be able to translate them confidently

11	The student will develop their abilities to recognize solutions for environmental and social impacts on sustainable approaches to complex problems.
12	The student will contribute to science, technology and society

5.10.5 Programme Operational Outcomes

1	M.Sc.(Stem Cell Science and Technology) programme aims to help advance the University's goal of achieving academic excellence by providing valuable resources to students.
2	The programme will facilitate an academically conducive environment for holistic development of students.
3	The institute will provide support for research excellence and facilitate patenting of innovation and subsequent commercialization. This will contribute to increase in intellectual capital of the institute.
4	The programme aims to inculcate core values of the university and ethical conduct amongst students, faculty and staff.
5	The programme will encourage cultural diversity and a sense of social and environmental responsibility.
6	The institute will provide opportunities for international collaborations and exposure to faculty and students.
7	The programme will proactively build strong relationships with corporates and utilize network of alumni to open communication channels and seek suggestions on curricula, pedagogy, syllabus and training.
8	The programme will facilitate employment opportunities and also support students to start their own ventures.
9	The programme will facilitate good governance in discharge of responsibilities and execution of policies and programs.

5.10.6 Programme Educational Outcome Assessment for Stem Cell Science & Technology

Sl. No.	PEO	PLO	Direct	Tool No for Direct Assessment	Target	Indirect	Tool No for Indirect Assessment	Target
1	The student shall be able to develop knowledge and skills to attain academic excellence in the field of Biotechnology.	The student will apply knowledge to develop critical thought and practical understanding of in the field of Biotechnology find solutions for human benefits.	*Comprehensive Exam	PG/PLO1/CE Framework	70% students shall pass the exam.	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.

2	The student shall demonstrate research skills to conduct research in the thrust areas of Biotechnology to benefit the society.	The student will identify, formulate, research literature, review existing knowledge and analyze complex molecular and biochemical problems to reach substantiated conclusions using principles of biology.	Project report submission	PG/PLO2/Dissertation	100% students will undertake and complete the Project report	Feedback of Industry Internship Guide	PG/PLO/ Exit Survey	The Industry Internship Guide rates the students between 3-5 range on the Likert Scale in the feedback
			*Comprehensive Exam	PG/PLO2/CE Framework				
3	The student shall be able to use and apply modern IT tools to analyze the biological data to arrive at logical conclusions.	The student will apply modern IT tools for acquisition and analysis of biological data.	*Section 3 of Comprehensive Exam	PG/PLO3/CE Framework	70% students shall pass the comprehensive exam	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
4	The student shall be able to analyze and interpret scientific data to solve	The student will demonstrate awareness of research principles	Project report submission	PG/PLO4/	100% students shall complete their projects and	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.

	technical, conceptual and abstract scientific problems.	and technical skills to plan independent Biotechnology research projects.		PG/PLO4/CE Framework	submit the report			
5	The student shall be able to develop effective communication skills to disseminate technical information and ability to write effective reports and reviews for scientific journals.	The student will develop appropriate level of communication skills to effectively disseminate research and technical information and shall be able to summarize scientific results; write effective reports and reviews in scientific journals.	*Rubrics Communication skills		80% students shall achieve the minimum of "satisfactory" outcome attainment level	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
				PG/PLO5/ BC				
				PG/PLO5/CE Framework				
6	The student shall be able to demonstrate effectiveness and responsibility as an individual as well as in a team while maintaining accountability and output.	The student will demonstrate the ability to work independently as individuals and flexibly within a team with effectiveness and responsibility.	* Behavioural Science rubrics		80% students shall achieve the minimum of "satisfactory" outcome attainment level	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
				PG/PLO6/BS				
			* Comprehensive Exam	PG/PLO6/CE Framework				

7	The student shall be able to develop global citizenship skills to build a sustainable world community.	The student will build skills to evolve into a responsible global citizen.	* Rubrics FBL	UG/PLO7/CE Framework	80% students shall achieve the minimum of "satisfactory" outcome attainment level	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
8	The student shall be able to interpret principles of ethics and apply them to develop sensitivity towards various environmental and cultural issues of the society.	The student will develop sensitivity to environmental issues and concerns and shall understand principles of ethics within the framework and apply these principles for environmentally and culturally sensitive issues.	*Plagiarism Checking of project report	PG/PLO8/CE Framework	100% Students are checked for plagiarism in NTCC report submissions and are allowed to appear for viva-voce upon obtaining plagiarism % below 15%.	Feedback of Industry Internship Guide		The Industry Internship Guide rates the students between 3-5 range on the Likert Scale in the feedback.
9	The student shall be able develop networking and entrepreneurship skills and establish links with industry and alumni.	The student will apply management principles to manage one's own work and/or projects and ventures.	Section 7 of comprehensive exam Project report submission	PG/PLO9/	70% students shall pass the exam 100% students shall submit the project reports	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
10	The student shall be able to create the	The student will organize	*Section 8 of Comprehen	PG/PLO10/CE Framework	70% students shall pass	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall

	virtue of lifelong learning.	the role of personal developme nt, self-directed study and discovery in learning to develop life-long learning.	sive Exam		the exam			score ≥ 75% in exit survey.
11	The student shall be able to create and develop thought process for environmen tal preservation by developing environmen tally sustainable technologies .	The student will develop appreciatio n for nature and the need for its preservatio n and conservatio n and demonstrat e care for the environme nt by developme nt of environme ntally sustainable technologie s.	*Section 9 of Comprehen sive Exam	PG/PLO11/CE Framework	70% students shall pass the exam	Studen t Exit Survey	PG/PLO/ Exit Survey	80% student s shall score ≥ 75% in exit survey.
12	The student shall be able to integrate various aspects of biotechnolo gy to achieve holistic and Societal developmen t.	The student will develop the capability to integrate theory, technical information and appropriate research methods for the benefit of society.	*Comprehe nsive Exam	PG/PLO12/CE Framework	70% students shall pass the exam	Studen t Exit Survey	PG/PLO/ Exit Survey	80% student s shall score ≥ 75% in exit survey.

5.10.7 Mapping of Intended Programme Learning Outcomes to Broad-Based Programme Educational Objectives (PEOs)

The broad-based student learning goals identified in Section I above encompass the intended student learning outcomes as articulated in this section, and are general composites or summaries of these outcomes. These relationships are summarized in the outcomes-to-goals mapping below (**Note: √ in a given cell of the table indicates the intended learning outcome in that row is associated with the learning goal in that column**.):

Matrix Of PEO`s and PLO`s

PEO/PLO	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PEO 7	PEO 8	PEO 9	PEO 10	PEO 11	PEO 12
PLO 1	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐
PLO 2	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐
PLO 3	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐
PLO 4	☐	☐	☐	☑	☐	☐	☐	☑	☐	☐	☐	☐
PLO 5	☑	☑	☑	☑	☑	☐	☐	☐	☑	☐	☐	☐
PLO 6	☑	☑	☐	☑	☐	☑	☐	☐	☑	☐	☐	☐
PLO 7	☐	☐	☑	☑	☐	☑	☐	☐	☐	☐	☐	☑
PLO 8	☐	☐	☑	☑	☐	☐	☑	☑	☐	☐	☐	☐
PLO 9	☐	☑	☐	☑	☑	☐	☑	☐	☑	☑	☑	☐
PLO 10	☐	☐	☑	☐	☐	☑	☑	☐	☐	☑	☐	☐
PLO 11	☐	☐	☐	☑	☐	☐	☐	☑	☐	☑	☑	☐
PLO 12	☐	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑

5.11 Amity Institute of Biotechnology

Programme – B. Tech. Biotechnology

5.11.1 Mission Statement

Programme Mission
To impart education at undergraduate level in the area of Biotechnology, emerging areas of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human and cultural values along with attributes of courage of conviction and action.

5.11.2 Programme Educational Objectives (PEOs)

Educational Goals	
1.	The student shall be able to **assemble** knowledge in order to attain academic excellence and contribute to development in upcoming areas of biotechnology.
2.	The student shall be able to **develop** research skills for recognizing and solving problems in the frontier areas of biotechnology
3.	The student shall be able to **apply** the latest IT tools to **interpre**t and **analyze** the scientific data.

4.	The student shall be able to **comprehend** and **interpret** the research data to solve the scientific problems
5.	The students shall be able to **develop** effective communication skills to enhance interpersonal relationship.
6.	The student shall be able to **demonstrate** leadership qualities and work effectively as an individual as well as a team.
7.	The student shall be able to **develop** global citizenship skills to build a sustainable world community
8.	The student shall be able to **implement** ethical behavior and demonstrate sensitivity towards various social and cultural issues.
9.	The student shall be able to **develop** entrepreneurship skills and **create** networking with industry and academia.
10.	The student shall be able to **evaluate** and **reflect** the virtue of life- long learning.
11.	The student shall be able to **demonstrate** sensitivity towards environmental conservation and sustainable technology.
12.	The student shall be able to **translate** the biotechnology based knowledge for holistic and societal development.

5.11.3 Programme Operational Objectives

1.	B. Tech. Biotechnology program will **create** conducive environment for excellence in teaching, learning, research and professional development of students.
2.	The program will **provide** opportunities to the faculty and staff to regularly upgrade their knowledge and skills by facilitating their participation in professional development programmes.
3.	The program will **demonstrate** sensitivity to the diverse needs of students and accordingly develop facilities and services
4.	The programme will **build** strong relationship with industry and formulate an alumni network while proactively seeking suggestions on curricula and training.
5.	The programme will **improve** processes and systems with an aim to attain national and international accreditations.
6.	The programme will facilitate employment opportunities and also support students to start their own ventures.
7.	The programme will implement good governance in discharge of responsibilities and execution of policies and programs.
8.	The programme will provide ample opportunities for international exposure to faculty and students

5.11.4 Programme Learning Outcomes

Intended Learning Outcomes	
1	The student will **develop** the knowledge in key areas of biotechnology with relevance to the profession of biotechnology
2	The student will **identify** biotechnological problems by reviewing existing knowledge to derive substantiated conclusions.
3	The student will **develop** IT based analytical aptitude for cutting edge areas of biotechnology.
4	The student will **apply** understanding of research based knowledge and scientifically validated methods to provide valid conclusions.
5	The student will **develop** skills to make effective and appropriate communication in both professional and social contexts.

6	The student will be able **combine** individual contribution and team work to produce an outcome.
7	The student will be able to **evolve** as a responsible global citizen.
8	The student will be able to **show** commitment to ethical practice and social responsibility.
9	The student will **implemen**t basic management principles to various projects and ventures.
10	The student will **develop** attitude and ability to engage in life- long learning
11	The student will be able to **solve** issues related to environmental and sustainable development
12	The student will **apply** biotechnological aspect and information for the benefit and betterment of society.

5.11.5 Programme Operational Outcomes

Operational Outcomes	
1	B. Tech. biotechnology programme will promote the use of appropriate methodology and pedagogical tools for teaching, learning and development.
2	The programme will provide environment for innovation and research and academic facilities, technological resources for the intellectual growth of faculty and students.
3	The programme will facilitate resources to cater diverse need of the students and faculty to achieve academica excellence.
4	The programme will develop building of strong relationships with corporates and utilize network of alumni to open communication channels and seek suggestions on curricula, pedagogy, syllabus and training.
5	The programme will develop infrastructure and resources to attain national and international accreditations
6	The programme will extend support to the students to provide employment , avenues for higher education and start their own ventures
7	The programme will ensure transparency and good governance by inculcating ethics and values in teaching , theory and research
8	The programme will invite delegates and speakers in conferences and seminars and provide various other opportunities for global exposure

5.11.6 Programme Educational Outcome Assessment for B. Tech. Biotechnology

Sl. No.	PEO	PLO	Direct	Tool No for Direct Assessment	Target	Indirect	Tool No for Indirect Assessment	Target
1	The student shall be able to assemble knowledge in order to attain	The student will develop the knowledge in key areas of biotechnology with	*Comprehensive Exam	UG/PLO1/CE Framework	70% students shall pass the exam.	Student Exit Survey	UG/PLO/Exit Survey	80% students response range between 4-5

	academic excellence and contribute to development in upcoming areas of biotechnology.	relevance to the profession of biotechnology						on the Likert Scale in the Student Exit Survey.
2	The student shall be able to develop the research skills for recognizing problems in the frontier areas of biotechnology	The student will identify biotechnological problems by reviewing existing knowledge to derive substantiated conclusions.	Term Paper, Summer Internship, Viva-voce *Comprehensive Exam	UG/PLO2/TP/SI/VV UG/PLO2/CE Framework	100% students will undertake and complete the dissertation	Feedback industry internship guide		The Industry Internship Guide rates the students between 4-5 range on the Likert Scale in the feedback.
3	The student shall be able to apply the latest IT tools to interpret and analyse the scientific data	The student will develop IT based analytical aptitude for cutting edge areas of biotechnology	*Comprehensive Exam	UG/PLO3/CE Framework	100% students shall able to leverage IT in order to complete their Assignements and Projects	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
4	The student shall be able to comprehend and interpret the research data to solve the scientific problems	The student will apply understanding of research based knowledge and scientifically validated methods to provide	*Major project Rubrics *Comprehensive Exam	UG/PLO4/ UG/PLO4/CE Framework	80% students shall able to demonstrate Problem Solving and Decision Making Skill	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey..

		valid conclusions.						
5	The students shall be able to develop effective communication skills to enhance interpersonal relationship	The student will develop skills to make effective and appropriate communication in both professional and social contexts.	*Rubrics (Communication skills) *Comprehensive Exam	UG/PLO5/C UG/PLO5/CE Framework	80% students should secure a grade of 6 and above on a 10-point scale in the presentation component of communication course.	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey..
6	The student shall be able to develop leadership qualities and work effectively as an individual as well as a team.	The student will be able combine individual contribution and team work to produce an outcome.	*Rubrics (Majorproject) * Comprehensive Exam	UG/PLO6/ UG/PLO6/CE Framework	80% students should secure a grade of 6 and above on a 10-point scale in the Journal for Success component of Behavioural Science course.	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
7	The student shall be able to develop global citizenship skills to build a sustainable world community	The student will be able to evolve as a responsible global citizen.	Major project rubrics * Comprehensive Exam	UG/PLO7/ UG/PLO7/CE Framework	100% students' participation in term papers and project report preparation.	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
8	The student shall be able to implement ethical behavior and demonstrate sensitivity towards various social and cultural	The student will be able to show commitment to ethical practice and social responsibility	*Plagiarism Checking of Major project		100% Students are checked for plagiarism in NTCC report submissions and are allowed to appear for viva-voce	Feedback industry internship guide		The Industry Internship Guide rates the students between 4-5 range

	issues.				upon obtaining plagiarism % below 15%.			on the Likert Scale in the feedback.
			Rubrics (Behavioural Science)					The University will adhere to zero tolerance towards use of unfair means
9	The student shall be able to develop entrepreneurship skills and create networking with industry and academia.	The student will implement basic management principles to various projects and ventures.	Rubrics (Behavioural Science)	UG/PLO9/	100% students submit the research report and 50% students should secure a grade of 6 and above on a 10-point scale.	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
			*Comprehensive Exam	UG/PLO9/CE Framework		Alumni Survey	UG/PLO/Alumni Survey	80% students shall score ≥ 75% in exit survey.
10	The student shall be able to evaluate and reflect the virtue of life- long learning	The student will develop attitude and ability to engage in life-long learning	*Major project Rubrics		Mentors will asses the Learning curve of 100% students.	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
			*Comprehensive Exam	UG/PLO10/CE Framework				
11	The student shall be able to demonstrate the sensitivity towards environmental conservation and.sustainable technology	The student will be able to solve issues related to environmental and sustainable development	*Comprehensive Exam	UG/PLO11/CE Framework	100 % students will elaborate their research findings through presentations and will defend the viva voce	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.

12	The student shall be able to translate the biotechnology based knowledge for holistic and societal development	The student will apply biotechnological aspect and information for the benefit and betterment of society.	Term Paper,*Comprehensive Exam	UG/PLO12/CE Framework	100% students will present the seminar and 50% students should secure a grade of 6 and above on a 10-point scale.		UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey..

5.11.7 Mapping of Intended Programme Learning Outcomes to Broad-Based Programme Educational Objectives (PEOs)

The broad-based student learning goals identified in Section I above encompass the intended student learning outcomes as articulated in this section, and are general composites or summaries of these outcomes. These relationships are summarized in the outcomes-to-goals mapping below (**Note: √ in a given cell of the table indicates the intended learning outcome in that row is associated with the learning goal in that column**.):

fPEO/PLO	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PEO 7	PEO 8	PEO 9	PEO 10	PEO 11	PEO 12
PLO 1	☑	☑	☐	☐	☐	☑	☐	☐	☐	☑	☐	☑
PLO 2	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☑
PLO 3	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐
PLO 4	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐
PLO 5	☐	☐	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐
PLO 6	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	☐	☐
PLO 7	☐	☐	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐
PLO 8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☑	☐	☐
PLO 9	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑
PLO 10	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐
PLO 11	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☑
PLO 12	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑

Programme – B. Tech. Bioinformatics

5.12.1 Mission Statement

Programme Mission
To impart education at undergraduate level in the area of Bioinformatics, emerging areas of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human and cultural values along with attributes of courage of conviction and action.

5.11.2 Programme Educational Objectives (PEOs)

Educational Goals	
1.	The student shall be able to assemble knowledge in order to attain professional excellence and contribute to development in upcoming areas of bioinformatics.
2.	The student shall be able to develop an aptitude for exploration and investigation of problems in the area of bioinformatics.
3.	The student shall be able to identify problems and prepare solutions in the form of workflows and algorithms in bioinformatics.
4.	The student shall use research based knowledge, learn the usage of scientific literature and proven methodology for deriving valid conclusions.
5.	The students shall show effective communication skills to disseminate technical information and ability to write effective reports for professional and societal impact.
6.	The student shall be able to demonstrate interpersonal skills and team spirit in various individual as well as team activities like debates, seminars.
7.	The student shall be able to develop skill set to be a responsible global citizen.
8.	The student shall apply commitment to ethical practice and social responsibility by following bioethical principles and cultural values.
9.	The student shall be able to develop decision making capability and management skills in order to handle various projects in bioinformatics.
10	The student shall be able to develop networking skills and inculcate the habit of life- long learning.
11	The student shall be able to apply taught concepts to undertake practical, environmental and professional work thereby improving employment and entrepreneurial skills.
12	The student shall be able to translate the bioinformatics based knowledge and expertise to the benefit of society.

5.12.3 Programme Operational Objectives

1.	B. Tech. Bioinformatics program will **create** conducive environment for excellence in teaching, learning, research and professional development of students.
2.	The program will **provide** opportunities to the faculty and staff to regularly upgrade their knowledge and skills by facilitating their participation in professional development programmes.
3.	The program will **demonstrate** sensitivity to the diverse needs of students and accordingly develop facilities and services
4.	The programme will **built** strong relationship with industry and formulate an alumni network while proactively seeking suggestions on curricula and training.
5.	The programme will **improve** processes and systems with an aim to attain national and international accreditations.

6.	The programme will facilitate employment opportunities and also support students to start their own ventures.
7.	The programme will implement good governance in discharge of responsibilities and execution of policies and programs.
8.	The programme will provide ample opportunities for international exposure to faculty and students

5.12.4 Programme Learning Outcomes

Intended Learning Outcomes	
1	The student will demonstrate an understanding of knowledge and skills including new developments in key areas of bioinformatics with relevance to the profession of bioinformatics.
2	The student will be able to demonstrate practical that involve problem solving and learn how to make decisions regarding choice of tools/algorithms.
3	The student will develop analytical aptitude for cutting edge areas of bioinformatics.
4	The student will apply understanding of research based knowledge and scientifically validated methods to provide valid conclusions.
5	The student will develop skills to make effective and appropriate communication in both professional and social contexts.
6	The student will be able combine individual contribution and team work for various activities to produce an outcome.
7	The student will analyze new concept and apply them using technology based tools
8	The student will develop and imbibe ethical principles which give deep insight to be culturally sensitive and socially responsible.
9	The student will demonstrate capability for management, team work, leadership and decision making based on open mindedness, objectivity and reasoned analysis in order to achieve targets.
10	The student will develop attitude, aptitude and ability to engage in lifelong learning
11	The student will apply the concepts of knowledge gained in bioinformatics for designing efficient environmentally sustainable technologies.
12	The student will be able to apply bioinformatics knowledge to solving problems in the society.

5.12.5 Programme Operational Outcomes

Operational Outcomes	
1	B. Tech. Bioinformatics programme will promote the use of appropriate methodology and pedagogical tools for teaching, learning and development.
2	The programme will provide environment for innovation and research and academic facilities, technological resources for the intellectual growth of faculty and students.
3	The programme will facilitate resources to cater diverse need of the students and faculty to achieve academica excellence.
4	The programme will develop building of strong relationships with corporates and utilize network of alumni to open communication channels and seek suggestions on curricula, pedagogy, syllabus and training.
5	The programme will develop infrastructure and resources to attain national and international accreditations
6	The programme will extend support to the students to provide employment , avenues for higher education and start their own ventures

7	The programme will ensure transparency and good governance by inculcating ethics and values in teaching , theory and research
8	The programme will invite delegates and speakers in conferences and seminars and provide various other opportunities for global exposure

5.12.6 Programme Educational Outcome Assessment for B. Tech. Bioinformatics

Sl. No.	PEO	PLO	Direct	Tool No for Direct Assessment	Target	Indirect	Tool No for Indirect Assessment	Target
1	The student shall be able to assemble knowledge in order to attain professional excellence and contribute to development in upcoming areas of bioinformatics.	The student will demonstrate an understanding of knowledge and skills including new developments in key areas of bioinformatics with relevance to the profession of bioinformatics.	*Comprehensive Exam	UG/PLO1/CE Framework	70% students shall pass the exam.	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
2	The student shall develop an aptitude for recognizing and resolving problems in the area of bioinformatics.	The student will be able to demonstrate practical that involve problem solving and learn how to make decisions regarding choice of tools/algorithms.	Project report submission	UG/PLO2/TP/SI/VV UG/PLO2/CE Framework	100% students will undertake and complete the project report	Industry feedback analysis		The Industry Internship Guide rates the students between 3-5 range on the Likert Scale in the feedback.
3	The student shall be able to identify problems	The student will develop	*section 3 of Comprehensive Exam	UG/PLO3/CE Framework	70% students shall pass the exam	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit

	and prepare solutions using holistic approaches in bioinformatics. They will be able to efficiently design workflows and algorithms in bioinformatics.	analytical aptitude for cutting edge areas of bioinformatics.						survey..
4	The student shall use research based knowledge, learn the usage of scientific literature and proven methodology for deriving valid conclusions.	The student will apply understanding of research based knowledge and scientifically validated methods to provide valid conclusions.	Project report submission	UG/PLO4/ UG/PLO4/ CE Framework	100% students shall complete their projects and submit the report	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
5	The students shall show effective communication skills to disseminate technical information and ability to write effective reports for professional and societal impact.	The student will develop skills to make effective and appropriate communication in both professional and social contexts.	*Rubrics (Communication skills)	UG/PLO5/ C UG/PLO5/ CE Framework	80% students shall achieve a minimum of "Satisfactory" outcome attainment level	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
6	The student shall be able to demonstrate interpersonal skills and team spirit in various	The student will be able combine individual contribution and team work for various	*Rubrics Behavioural Science	UG/PLO6/ UG/PLO6/ CE Framework	80% students shall achieve a minimum of "Satisfactory" outcome	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey..

	individual as well as team activities like debates, seminars.	activities to produce an outcome.			attainment level			
7	The student shall be able to use technology based tools to design and understand the biological workbench and software packages.	The student will analyze new concept and apply them using technology based tools	Rubrics FBL	UG/PLO7/ UG/PLO7/ CE Framework	80% students shall achieve a minimum of "Satisfactory" outcome attainment level	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
8	The student shall apply commitment to ethical practice and social responsibility by following bioethical principles and cultural values.	The student will develop and imbibe ethical principles which give deep insight to be culturally sensitive and socially responsible.	*Plagiarism Checking		100% Students are checked for plagiarism in NTCC report submissions and are allowed to appear for viva-voce upon obtaining plagiarism % below 15%.	Industry feedback Analysis		The Industry Internship Guide rates the students between 3-5 range on the Likert Scale in the feedback.
9	The student shall be able to develop decision making capability and management skills in order to handle various projects in bioinformatics.	The student will demonstrate capability for management, team work, leadership and decision making based on open mindedness, objectivity and reasoned	*Section 7 of Comprehensive Exam Project report submission	UG/PLO9/ UG/PLO9/ CE Framework	70% students shall pass the exam 100 % students shall submit the project report	Student Exit Survey Alumni Survey	UG/PLO/Exit Survey UG/PLO/Alumni Survey	80% students shall score ≥ 75% in exit survey. 80% students shall score ≥ 75% in exit survey.

		analysis in order to achieve targets.						
10	The student shall be able to develop networking skills with alumni and inculcate the habit of life-long learning.	The student will develop attitude, aptitude and ability to engage in lifelong learning	*Section 8 of Comprehensive Exam	UG/PLO10 /CE Framework	70% Students shall pass the exam	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey..
11	The student shall be able to apply taught concepts to undertake practical, environmental and professional work thereby improving employment and entrepreneurial skills.	The student will apply the concepts of knowledge gained in bioinformatics for designing efficient environmentally sustainable technologies.	*Section 9 of Comprehensive Exam	UG/PLO11 /CE Framework	70 % students shall pass the exam	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
12	The student shall be able to translate the bioinformatics based knowledge and expertise to the benefit of society.	The student will be able to apply bioinformatics knowledge to solving problems in the society.	*Comprehensive Exam	UG/PLO12 /CE Framework	70% students shall pass the exam.		UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.

5.12.7 Mapping of Intended Programme Learning Outcomes to Broad-Based Programme Educational Objectives (PEOs)

The broad-based student learning goals identified in Section I above encompass the intended student learning outcomes as articulated in this section, and are general composites or summaries of these outcomes. These relationships are summarized in the outcomes-to-goals mapping below (**Note: √ in a given cell of the table indicates the intended learning outcome in that row is associated with the learning goal in that column**.):

fPEO/PLO	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PEO 7	PEO 8	PEO 9	PEO 10	PEO 11	PEO 12
PLO 1	☑	☑	☐	☐	☐	☑	☐	☐	☐	☑	☐	☑

PLO 2	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☑
PLO 3	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐
PLO 4	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐
PLO 5	☐	☐	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐
PLO 6	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	☐	☐
PLO 7	☐	☐	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐
PLO 8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☑	☐	☐
PLO 9	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑
PLO 10	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐
PLO 11	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☑
PLO 12	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑

5.13 Programme – B. Tech. + M. Tech. (Dual) Biotech.

5.13.1 Mission Statement

Programme Mission
To provide applied education in the area of Biotechnology, related areas of applied science, humanity related areas and in the futuristic and emerging frontier areas of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong, yearning for perfection and courage of conviction and action.

5.13.2 Programme Educational Objectives (PEOs)

1.	The student shall be able to **develop** knowledge and skills to integrate principles of Biosciences and Biotechnology to achieve academic excellence.
2.	The student shall **demonstrate** research skills and conduct innovative research in thrust areas of Biotechnology and apply these to benefit the society.
3.	The students shall be able to **use** latest technology based expertise for planning, designing new experiments and troubleshooting methods to be applied in bio- processes of plants, animals and microbes, on industrial scale.
4.	The student shall be able to **comprehend** and **interpret** the research data to execute formulation and justification of conclusion at industry level.
5.	The student shall be able to **develop** effective communication skills to enhance interpersonal relationship and shall **explain** effective and judicial practices in Biotechnology.
6.	The student shall be able to **develop** leadership skills and perform responsibly as an individual as well as in a team while maintaining accountability and output.
7.	The student shall be able to **apply** their knowledge and skills throughout their careers and serve society at national and global level.
8.	The student shall be able to **choose** to follow ethical principles and apply them to solve social and culturally sensitive issues in the society.
9.	The student shall be able to **develop** networking and entrepreneurship skills and create a strong

	network with the industry and alumni.
10.	The student shall be able to **develop** their skills and knowledge throughout their professional career, thereby adopting life-long learning.
11.	The student shall be able to **recognize** the need for environmental conservation and develop sustainable technologies.
12.	The student shall be able to **integrate** various aspects of Biotechnology and apply these to achieve holistic and societal development.

5.13.3 Programme Operational Objectives

B. Tech.+ M. Tech. Biotechnology programme will create appropriate resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students.
The programme will provide opportunities and environment for innovation and research excellence for the intellectual growth of faculty and students.
The programme will demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
The programme will continuously strive to build strong industry interaction, alumni networks and empanelment of expertise from industry while proactively seeking suggestions on curricula and training.
The programme will continually improve processes and systems with an aim to attain national and international accreditations.
The programme will extend support to the students in order to facilitate campus recruitment, higher education or starting their own ventures.
The programme will act ethically to ensure transparency and good governance while discharging various responsibilities to its stakeholders and execution of policies and programs.
The programme will create opportunities for international exposure for its students and faculty.

5.13.4 Programme Learning Outcomes

Intended Learning Outcomes	
1.	The student will **attain** and **apply** knowledge of Biotechnology to solve diverse problems and find solutions for human benefits.
2.	The student will **review** and **apply** existing knowledge of Biotechnology to analyze complex biotechnology problems to reach substantiated conclusions using principles of biology.
3.	The student will **use** latest technology to acquire and analyze biological data.
4.	The student will **innovate** in terms of new ideas and products and interpret research in biosciences and biotechnology in order to solve scientific problems.
5.	The student will **develop** ability to communicate effectively to improve interpersonal communications.
6.	The student will **develop** leadership skills and perform responsibly as an individual as well as in a team while maintaining accountability and output.
7.	The student will **apply** knowledge and skills throughout the career and serve society at

	national and global level.
8.	The student will **implement** ethical principles and show professional, personal and academic integrity to tackle various issues.
9.	The student will **apply** sound planning and organizational skills that promotes and contributes to the strategic planning of their enterprise or organization.
10	The student will **recognize** the need for independent and life-long learning.
11	The student will **develop** ability to recognize environmental and social impacts and to provide leadership on sustainable approaches to complex problems.
12	The student will **apply** the knowledge of biosciences for the benefit of society.

5.13.5 Programme Operational Outcomes

Operational Outcomes	
1	B. Tech+ M. Tech Biotechnology programme will promote use of appropriate methodology and pedagogical tools for teaching, learning and development.
2	The programme will provide environment for innovation and research and academic facilities, technological resources for teaching and learning to the students.
3	The programme will facilitate resources to cater diverse needs of the students and faculty to achieve academic excellence.
4	The programme will develop and maintain strong relationship with research institutes, alumni and industry.
5	The programme will develop infrastructure and resources to attain national and international accreditations.
6	The programme will extend support to the students to provide employment, avenues for higher education and starting their own ventures.
7	The programme will ensure transparency and good governance by integrating ethics and values in teaching, theory and practice.
8	The programme will invite international delegates and speakers for seminars and conferences and provide various other opportunities for global exposure.

5.13.6 Programme Educational Outcome Assessment for B. Tech. +M. Tech. Biotechnology

Sl. No.	**PEO**	**PLO**	**Direct**	**Tool No for Direct Assessment**	**Target**	**Indirect**	**Tool No for Indirect Assessment**	**Target**
1	The student shall be able to develop knowledge and skills to integrate principles of Biosciences and Biotechnology to achieve	The student will attain and apply knowledge of Biotechnology to solve diverse problems and find	*Comprehensive Exam	PG/PLO1/ CE Framework	70% students shall pass the exam.	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey..

	academic excellence.	solutions for human benefits.						
2	The student shall demonstrate research skills and conduct innovative research in thrust areas of Biotechnology and apply these to benefit the society.	The student will review and apply existing knowledge of Biotechnology to analyze complex biotechnology problems to reach substantiated conclusions using principles of biology.	Project Report submission	PG/PLO2/ Dissertation PG/PLO2/ CE Framework	100% students will undertake and complete the Project Report	Syllabus Analysis		The Industry Internship Guide rates the students between 3-5 range on the Likert Scale in the feedback.
3	The students shall be able to use latest technology based expertise for planning, designing new experiments and troubleshooting methods to be applied in bio-processes of plants, animals and microbes, on industrial scale.	The student will use latest technology to acquire and analyse biological data.	*Section 3 of Comprehensive Exam	PG/PLO3/ CE Framework	70% students shall pass the exam	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
4	The student shall be	The student		PG/PLO4/	100% students	Student Exit	PG/PLO/	80% students

	able to comprehend and interpret the research data to execute formulation and justification of conclusion at industry level.	will innovate in terms of new ideas and products and interpret research in biosciences and biotechnology in order to solve scientific problems..	Project Report submission	PG/PLO4/ CE Framework	shall complete their projects and submit the report.	Survey	Exit Survey	shall score ≥ 75% in exit survey.
5	The student shall be able to develop effective communication skills to enhance interpersonal relationship and shall explain effective and judicial practices in Biotechnology.	The student will develop ability to communicate effectively to improve interpersonal communications.	*Rubrics Communication skills	PG/PLO5/ BC PG/PLO5/ CE Framework	80% students shall achieve a minimum of 'satisfactory' outcome attainment level.	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
6	The student shall be able to develop leadership skills and perform responsibly as an individual as well as in a team while maintaining accountability and output.	The student will develop leadership skills and perform responsibly as an individual as well as in a team while maintaining accountability and output.	*Rubrics Behavioral Sciences	PG/PLO6/ BS PG/PLO6/ CE Framework	80% students shall achieve a minimum of 'satisfactory' outcome attainment level.	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
7	The student shall be able to apply their	The student will apply their	Rubrics Foreign Language		80% students shall achieve a	Student Exit Survey	PG/PLO/ Exit	80% students shall score ≥ 75% in

	knowledge and skills throughout their careers and serve society at national and global level.	knowledge and skills throughout their careers and serve society at national and global level.	* Comprehensive Exam		minimum of 'satisfactory' outcome attainment level.		Survey	exit survey.
				PG/PLO7/				
				UG/PLO7/ CE Framework				
8	The student shall be able to choose to follow ethical principles and apply them to solve social and culturally sensitive issues in the society.	The student will implement ethical principles and show professional, personal and academic integrity to tackle various issues.	*Plagiarism Checking of Dissertation		100% Students are checked for plagiarism in NTCC report submissions and are allowed to appear for viva-voce upon obtaining plagiarism % below 15%.	Syllabus Analysis		The Industry Internship Guide rates the students between 3-5 range on the Likert Scale in the feedback.
			* Comprehensive Exam	PG/PLO8/ CE Framework				
9	The student shall be able to develop networking and entrepreneurship skills and create a strong network with the industry and alumni.	The student will apply sound planning and organizational skills that promotes and contributes to the strategic planning of their enterprise or organization.	Project Report submission	PG/PLO9/	100% students shall submit the Project Report. 70% students shall pass the comprehensive exam.	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
			*Section 7 of Comprehensive Exam	PG/PLO9/ CE Framework				
10	The student shall be able to develop their skills and	The student will recognize the need for	*Section 8 of Comprehensive Exam	PG/PLO10 /CE Framework	70% students shall pass the coprehensive exam.	Student Exit Survey	PG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.

	knowledge throughout their professional career, thereby adopting life-long learning.	independent and life-long learning.	*Term paper, viva-voce , *Rubrics(Dissertation)					
11	The student shall be able to recognize the need for environmental conservation and develop sustainable technologies.	The student will develop ability to recognize environmental and social impacts and to provide leadership on sustainable approaches to complex problems.	*Section 9 of Comprehensive Exam	PG/PLO11/CE Framework	70% students shall pass the comprehensive exam	Student Exit Survey	PG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
12	The student shall be able to integrate various aspects of Biotechnology and apply these to achieve holistic and societal development.	The student will apply the knowledge of biosciences for the benefit of society.	*Comprehensive Exam	PG/PLO12/CE Framework	70% students shall pass the comprehensive exam	Student Exit Survey	PG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.

5.13.7 Student Learning Assessment for B. Tech. +M. Tech.(Dual) Biotechnology

Mapping of Intended Programme Learning Outcomes to Broad-Based Programme Educational Objectives (PEOs)

The broad-based student learning goals identified in Section I above encompass the intended student learning outcomes as articulated in this section, and are general composites or summaries of these outcomes. These relationships are summarized in the outcomes-to-goals mapping below (**Note: √ in a given cell of the table indicates the intended learning outcome in that row is associated with the learning goal in that column**.):

PEO/PLO	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PEO 7	PEO 8	PEO 9	PEO 10	PEO 11	PEO 12
PLO 1	☑	☑	☐	☐	☐	☑	☐	☐	☐	☑	☐	☑
PLO 2	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☐	☑
PLO 3	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐
PLO 4	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐
PLO 5	☐	☐	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐
PLO 6	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	☐	☐
PLO 7	☐	☐	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐
PLO 8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☑	☐	☐
PLO 9	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑
PLO 10	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐
PLO 11	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☑
PLO 12	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑

5.14 Programme – B. Sc.+M. Sc. (Dual) Biotechnology

5.14.1 Mission Statement

Programme Mission
To provide in depth knowledge and advanced education in the area of Biotechnology and in the futuristic and emerging frontier areas of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong, yearning for perfection and courage of conviction and action..

5.14.2 Programme Educational Objectives (PEOs)

1. The students shall be able to develop critical and practical understanding in the field of biotechnology, bioinformatics, medical, industrial, environmental and agricultural biotechnology.
2. The students shall be able to create research skills to solve a range of complex scientific problems, design experiments, interpretation and analysis of data, towards constructing significant results.
3. The students shall be able to use and apply theoretical knowledge and appropriate modern IT tools in solving problems related to research and development.
4. The students shall be able to interpret and comprehend specialized cognitive and creative skills to identity, review, systematically analyze and critically appraise specialized concepts of biotechnology.
5. The students shall be able to develop good communication skills to effectively disseminate research and technical information.
6. The students shall be able to analyze effectively as an individual, and as a member or leader in diverse tea and in multidisciplinary settings.
7. The students shall be able to identify intercultural competence and global citizenship by interpreting

aspects of other cultures and countries with nuance and accuracy.
8. The students shall be able to develop principles of ethics within the framework and apply these principles for environmentally, technically and socially sensitive issues with acceptance in the society.
9. The students shall be able to interpret taught concepts and understanding of management principles and entrepreneurship.
10. The students shall be able to evaluate and reflect habit to acquire knowledge and skills to become lifelong learners
11. The students shall be able to explain thought process for care of the environment by designing environmentally sustainable technologies.
12. The students shall be able to apply knowledge to recognize, formulate and evaluate research principles and technical skills to plan and implement research projects for advancement of science and society.

5.14.3 Programme Operational Objectives

The B. Sc. +M.Sc. (Biotechnology) programme will aim to achieve the University's goal of achieving academic excellence by creating and providing valuable resources to students.
The programme will provide an academically conducive environment for holistic development of students and encourage them to obtain funded research projects from various agencies
The program will demonstrate support to the students by providing resources to communicate their scientific ideas and research work in highly reputed indexed journals.
The programme will build strong relationships with corporates and utilize network of alumni to open communication channels and seek suggestions on curricula, pedagogy, syllabus and training and employment
The programme will improve processes and systems by encouraging students to provide constructive inputs for execution of policies and programs towards achieving good governance
The programme will extend support to the students in order to facilitate employment opportunities and also support students to develop entrepreneurial skills.
The programme will inculcate core values of the university and ethical conduct amongst students, faculty and staff.
The programme will create opportunities for international exposure for its students.
The B. Sc. +M. Sc. (Biotechnology) programme will aim to achieve the University's goal of achieving academic excellence by creating and providing valuable resources to students.

5.14.4 Programme Learning Outcomes

2.1.1. Intended Learning Outcomes
1. The student will demonstrate academic excellence and practical understanding in the field of biotechnology, bioinformatics, medical, industrial, environmental and agricultural biotechnology
2. The student will be able to identify and solve a range of complex scientific problems, design experiments, interpretation and analysis of data, towards constructing significant results.
3. The student will have practical skills and theoretical knowledge and application of appropriate modern IT tools in solving problems related to research and development.
4. The student will be able to translate specialized cognitive and creative skills to identity, review, systematically analyze and critically appraise specialized concepts of biotechnology.
5. The student will have an appropriate level of communication skills to effectively disseminate research and technical information.

6. The student will be able to work effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
7. The student will be able to understand interconnectedness and interdependency of different countries and populations
8. The student will be able to translate principles of ethics within the framework and apply these principles for environmentally, technically and socially sensitive issues with acceptance in the society.
9 The student will demonstrate knowledge and understanding of technical and management principles in order to achieve self as well as organizational goals
10. The student will demonstrate the aim of improving knowledge, skills and competences throughout life.
11. The student will appraise and appreciate nature and the need for its preservation and conservation. Designing thought process for care of the environment by development of environmentally sustainable technologies.
12. The student will be able to recognize, formulate and correlate research principles and technical skills to plan and implement research projects for advancement of science and society

5.14.5 Programme Operational Outcomes

Operational Outcomes	
1	BSc.+ MSc. Biotechnology programme will create appropriate resources, infrastructure, and develop appropriate methodology and pedagogical tools for excellence in teaching, learning and development of students.
2	The programme will provide opportunities to the faculty and staff to regularly upgrade their knowledge and skills by facilitating their participation in professional development programmes.
3	The programme shall provide academic facilities, technological resources for teaching and learning to the students
4	The student of the programme will earn achievements in intra and inter-university Extra Curricular activities.
5	Faculty and students will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing body of Knowledge.
6	The programme will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff.
7	The programme will facilitate cultivation of cultural and environmental conservation values among students.
8	The programme will develop and maintain strong relationship with research institutes, alumni and industry.
9	The programme will invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure and will support all the students for quality placements or join family business or start their own venture
10	The programme will establish an internal quality cell for operational quality and process improvement for students.

5.14.6 Programme Educational Outcome Assessment for B. Sc. +M. Sc. (Dual) Biotechnology

Sl. No.	**PEO**	**PLO**	**Direct**	**Tool No for Direct Assessment**	**Target**	**Indirect**	**Tool No for Indirect Assessment**	**Target**

1	The students shall be able to develop critical and practical understanding in the field of biotechnology, bioinformatics, medical, industrial, environmental and agricultural biotechnology.	The student will develop academic excellence as well as application of critical thought and practical understanding in the field of biotechnology, .bioinformatics, medical, industrial, environmental and agricultural biotechnology.	*Comprehensive Exam	PG/PLO1/CE Framework	70% students shall pass the exam.	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in the Exit Survey.
2	The students shall be able to create research skills to solve a range of complex scientific problems, design experiments, interpretation and analysis of data, towards constructing significant results.results.	The student will be able to identify and solve a range of complex scientific problems, design experiments, interpretation and analysis of data, towards constructing significant results.	Project report submission	PG/PLO2/Dissertation PG/PLO2/CE Framework	100% students will undertake and complete the project report	Internship feedback analysis		The Industry Internship Guide rates the students between 3-5 range on the Likert Scale in the feedback.

3	The students shall be able to use and apply theoretical knowledge and appropriate modern IT tools in solving problems related to research and development.	. The student will have practical skills and theoretical knowledge and application of appropriate modern IT tools in solving problems related to research and development.	*Section 3 of Comprehensive Exam	PG/PLO3/CE Framework	70 % students shall pass the exam	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in the Exit Survey.
4	The students shall be able to interpret and comprehend specialized cognitive and creative skills to identity, review, systematically analyze and critically appraise specialized concepts of biotechnology.	The student will translate specialized cognitive and creative skills to work on specialized concepts of biotechnology	*Project report submission	PG/PLO4/ PG/PLO4/CE Framework	100% students shall complete their projects and submit the report	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in the Exit Survey.
5	The students shall be able to develop good communication skills	The student will create an appropriate level of communication skills to effectively disseminate	*Rubrics Communication skills		80% students shall achieve a minimum of “Satisfac	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in the Exit Survey.

	to effectively disseminate research and technical information.	research and technical information.		PG/PLO5/ BC	tory" outcome attainment level.			
6	The students shall be able to analyze effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.	The student will be able to work effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.	*Rubrics Behavioural Science	PG/PLO6/BS PG/PLO6/CE Framework	80% students shall achieve a minimum of "Satisfactory" outcome attainment level.	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in the Exit Survey.
7	The students shall be able to identify intercultural competence and global citizenship by interpreting aspects of other cultures and countries with nuance and accuracy.	The student will be able to understand interconnectedness and interdependency of different countries and populations	*Rubrics FBL	PG/PLO7/ UG/PLO7/CE Framework	80% students shall achieve a minimum of "Satisfactory" outcome attainment level.	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in the Exit Survey.

8	The students shall be able to develop principles of ethics within the framework and apply these principles for environmentally, technically and socially sensitive issues with acceptance in the society..	The student will be able to translate principles of ethics within the framework and apply these principles for environmentally, technically and socially sensitive issues with acceptance in the society.	*Plagiarism Checking of project report		100% Students are checked for plagiarism in NTCC report submissions and are allowed to appear for viva-voce upon obtaining plagiarism % below 15%.	Faculty internship feedback		The Industry Internship Guide rates the students between 3-5 range on the Likert Scale in the feedback.
				PG/PLO8/CE Framework				
9	The students shall be able to interpret taught concepts and understanding of management principles and entrepreneurship.	The student will be able to demonstrate understanding of management principles in order to achieve self as well as organizational goals.	Section 7 of Comprehensive exam Project report submission	PG/PLO9/	70% students shall pass the exam 100% students shall submit the project report	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in the Exit Survey.

				PG/PLO9/CE Framework		Alumni Survey	PG/PLO/ Alumni Survey	
10	The students shall be able to evaluate and reflect habit to acquire knowledge and skills to become life long learners	The student will be able to demonstrate the aim of improving knowledge, skills and competences t hroughout life.	*Section 8 of Comprehensive Exam	PG/PLO10/CE Framework	70% students shall pass the exam	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in the Exit Survey.
11	The students shall be able to explain thought process for care of the environment by designing environmentally sustainable technologies.	The student will be able to appraise and appreciate nature and the need for its preservation and conservation. Designing thought process for care of the environment by development of environmentally sustainable technologies.	*Section 9 of Comprehensive Exam	PG/PLO11/CE Framework	100 % students will elaborate their research findings through presentations and will defend the viva voce	70% student shall pass the exam	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in the Exit Survey.

12	The students shall be able to apply knowledge to recognize, formulate and evaluate research principles and technical skills to plan and implement research projects for advancement of science and society.	The student will formulate and correlate research principles and technical skills to plan and implement research projects for advancement of science and society.	*Comprehensive Exam	PG/PLO12/CE Framework	70% students shall pass the exam.	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in the Exit Survey.

5.14.7 Matrix Of PEO`s and PLO`s

PEO/PLO	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PEO 7	PEO 8	PEO 9	PEO 10	PEO 11	PEO 12
PLO 1	✔											
PLO 2		✔										
PLO 3			✔									
PLO 4				✔								
PLO 5					✔							
PLO 6						✔						
PLO 7							✔					
PLO 8								✔				
PLO 9									✔			
PLO 10										✔		
PLO 11											✔	
PLO 12												✔

5.15 B.Sc. (H) Biotechnology

5.15.1 Mission Statement

Programme Mission
To provide basic education in the area of Biotechnology, related areas of applied science and in the futuristic and emerging frontier areas of knowledge, learning and research and to develop the

overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong, yearning for perfection and courage of conviction and action.

5.15.2 Programme Educational Objectives (PEOs)

Educational Goals	
1.	The student shall be able to develop concepts in theoretical and applied aspects of biotechnology
2.	The student shall be able to demonstrate systematic understanding of fundamental relevant questions and practical skills related to biotechnology.
3.	The student shall be able to use and apply modern IT tools in relation to Biotechnology.
4.	The student shall be able to interpret and comprehend research problems, propose solutions and prioritize work.
5.	The student shall be able to employ effective communication skills on various topics of biosciences and biotechnology
6.	The student shall be able to attain leadership skills and perform responsibly as an individual, and as a member in diverse teams in multidisciplinary settings.
7.	The student shall be able to develop into a responsible global citizen.
8.	The student shall practice ethical behaviour and shall know the ethical issues associated with current Biotechnological research
9.	The student shall be able to develop management and entrepreneurship skills.
10.	The student shall be able to evaluate intellectual curiosity, and reflect the habit of life long learning.
11.	The student shall be able to analyze the interrelationship between environment, social and economic sustainability.
12.	The student shall be able to apply biotechnology to fulfil societal needs from time to time.

5.15.3 Programme Operational Objectives

1.	The B.Sc.(Biotechnology) programme aims to create academic excellence by providing valuable resources to students
2.	The program will provide environment for innovation and research for the intellectual growth of faculty and students
3.	The program will demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
4.	The program will strive to build strong industry interaction, alumni networks and empanelment of expertise from industry.
5.	The program will continually improve processes and systems with an aim to attain national and international accreditations and institutional ranking.
6.	The programme will extend support to the students to create employment opportunities and develop entrepreneurial skills.
7.	The programme will act ethically to ensure good governance in discharge of responsibilities and execution of policies and programs
8.	The programme will create opportunities for international exposure for its students and faculty.

5.15.4 Programme Learning Outcomes

Intended Learning Outcomes	
1	The student will be able to use and apply appropriate techniques and resources for understanding of the basic biotechnological concepts.
2	The student will develop critical skills to analyze problems in a holistic manner.
3	The student will develop analytical skills to solve biological problems by using modern IT tools in relation to Biotechnology
4	The student will be able to arrange and review biotechnological data, investigate implications systematically and propose solutions
5	The student will be able to apply good communication skills and write effective reports on various topics in biotechnology.
6	The students will develop skills in interpersonal understanding, and teamwork.
7	The student will be able to analyse international interconnections, with attention to both international differences and global trends
8	The student will be able to comply to ethical principles associated with biotechnology and society.
9	The student will be able to extend management ability and leadership qualities to decision making while performing various types of projects.
10	The student will be able to value the importance of life-long learning.
11	The student will be able to apply their environmental and sustainability literacy in a diverse context.
12	The student will be able to apply biotechnological learning to societal issues.

5.15.5 Programme Operational Outcomes

Operational Outcomes	
1	BSc (H) Biotechnology programme will promote use of appropriate methodology and pedagogical tools for teaching, learning and development.
2	The curriculum of the programme will be contemporary and relevant to meet research and industry requirements and benchmarked on global standards by incorporating feedback from all the stakeholders.
3	The programme will provide academic facilities, technological resources for teaching and learning according to diverse needs of the students
4	The programme will develop and maintain strong relationship with research institutes, alumni students and industry experts.
5	The programme will improve processes to attain and sustain a good national and international ranking.
6	The programme will extend various opportunities for global exposure and will support all the students for quality placements or join family business or start their own venture
7	The programme will establish an internal quality cell for operational quality and process improvement for students.
8	The programme will create opportunities for international exposure for its students and faculty.

5.15.6 Programme Educational Outcome Assessment for B. Sc. Biotechnology

Sl. No.	PEO	PLO	Direct	Tool No for Direct Assessment	Target	Indirect	Tool No for Indirect Assessment	Target
1	The student shall be able to develop concepts in theoretical and applied aspects of biotechnology	The student will be able to use and apply appropriate techniques and resources for understanding of the basic biotechnological concepts	*Comprehensive Exam	UG/PLO1/CE Framework	70% students shall pass the exam.	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
2	The student shall be able to demonstrate systematic understanding of fundamental relevant questions and practical skills related to biotechnology.	The student willl develop critical skills to analyze problems in a holistic manner.	Project Report submission	UG/PLO2/CE Framework	100% students will undertake and complete the project report.	Feedback of Industry Internship Guide		The Industry Internship Guide rates the students between 3-5 range on the Likert Scale in the feedback.
3	The student shall be able to use and apply modern IT tools in relation to Biotechnology.	The student will develop analytical skills to solve biological problems by using modern IT tools in relation to Biotechnology	Section 3 of comprehensive exam.	UG/PLO3/	70% students shall pass the exam.	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
4	The student shall be able to interpret and comprehend research problems, propose solutions and prioritize work..	The student will be able to arrange and review biotechnological data, investigate implications systematically and propose solutions	Project report submission	UG/PLO4/ UG/PLO4/CE Framework	100% students shall complete their project and submit the report	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.

5	The student shall be able to employ effective communication skills on various topics of biosciences and biotechnology	The student will be able to apply good communication skills and write effective reports on various topics in biotechnology..	*Rubrics (Communication skills)	UG/PLO5/	80% students shall achieve a minimum of satisfactory outcome attainment level.	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
				UG/PLO5/CE Framework				
6	The student shall be able to attain leadership skills and perform responsibly as an individual, and as a member in diverse teams in multidisciplinary settings.	The students will develop skills in interpersonal understanding, and teamwork.			80% students shall achieve a minimum of satisfactory outcome attainment level.	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
			*Rubrics (Behavioural Sciences)	UG/PLO6/				
				UG/PLO6/CE Framework				
7	The student shall be able to develop into a responsible global citizen.	The student will be able to analyse international interconnections, with attention to both international differences and global trends	Rubrics (FBL)		80% students shall achieve a minimum of satisfactory outcome attainment level.	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
				UG/PLO7/				
				UG/PLO7/CE Framework				
8	The student shall practice ethical behaviour and shall know the ethical issues associated with current Biotechnological	The student will be able to comply to ethical principles associated with biotechnology and society.	*Plagiarism Checking of project		100% Students are checked for plagiarism in NTCC report submissions and are	Feedback of External Internship Guide		The External Internship Guide rates the students between 3-5 range on the Likert Scale in the feedback.

	research		*Rubrics (Behavioural Science) Rubrics		allowed to appear for viva-voce upon obtaining plagiarism % below 15%.			
9	The student shall be able to develop management and entrepreneurship skills.	The student will be able to extend management ability and leadership qualities to decision making while performing various types of projects.	*Section 7 of Comprehensive Exam Project Report submission	UG/PLO9/CE Framework	70% students shall pass the exam 100% students shall submit the project reports.	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey. .
10	The student shall be able to evaluate intellectual curiosity, and reflect the habit of life long learning.	The student will be able to value the importance of life-long learning.	Section 8 of comprehensive exam *Comprehensive Exam	 UG/PLO10/CE Framework	70% students shall pass the exam	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
11	The student shall be able to analyze the interrelationship between environment, social and economic sustainability.	The student will be able to apply their environmental and sustainability literacy in a diverse context.	*Section 9 of Comprehensive exam	UG/PLO11/CE Framework	70% students shall pass the exam	Student Exit Survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
12	The student shall be able to apply biotechnology to fulfil societal needs from	The student will be able to apply biotechnological learning to societal issues.	*Comprehensive Exam	UG/PLO12/CE Framework	70% students shall pass the exam	Student exit survey	UG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.

	time to time.							

5.15.7 Student Learning Assessment for B.Sc. (H) Biotechnology

Mapping of Intended Programme Learning Outcomes to Broad-Based Programme Educational Objectives (PEOs)

The broad-based student learning goals identified in Section I above encompass the intended student learning outcomes as articulated in this section, and are general composites or summaries of these outcomes. These relationships are summarized in the outcomes-to-goals mapping below (**Note: √ in a given cell of the table indicates the intended learning outcome in that row is associated with the learning goal in that column**.):

/PLO	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PEO 7	PEO 8	PEO 9	PEO 10	PEO 11	PEO 12
PLO 1	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐
PLO 2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐
PLO 3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐
PLO 4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑
PLO 5	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
PLO 6	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
PLO 7	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐
PLO 8	☑	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐
PLO 9	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐
PLO 10	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
PLO 11	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐
PLO 12	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐

5.16 B.Sc. (H) Medical Biotechnology

5.16.1 Mission Statement

Programme Mission
To provide basic education in the area of Biotechnology, related areas of applied science and in the futuristic and emerging frontier areas of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong, yearning for perfection and courage of conviction and action.

5.16.2 Programme Educational Objectives (PEOs)

1.	The student shall be able to develop concepts in theoretical and applied aspects of Medical biotechnology
2.	The student shall be able to demonstrate systematic understanding of fundamental relevant questions and practical skills related to Medical biotechnology.
3.	The student shall be able to use and apply modern IT tools in relation to Medical

	Biotechnology.
4.	The student shall be able to interpret and comprehend research problems, propose solutions and prioritize work.
5.	The student shall be able to employ effective communication skills on various topics of biosciences and Medical biotechnology
6.	The student shall be able to attain leadership skills and perform responsibly as an individual, and as a member in diverse teams in multidisciplinary settings.
7.	The student shall be able to develop into a responsible global citizen.
8.	The student shall practice ethical behavior and shall know the ethical issues associated with current Biotechnological research
9.	The student shall be able to develop management and entrepreneurship skills.
10.	The student shall be able to evaluate intellectual curiosity, and reflect the habit of life long learning.
11.	The student shall be able to analyze the interrelationship between environment, social and economic sustainability.
12.	The student shall be able to apply biotechnology to fulfill societal needs from time to time.

5.16.3 Programme Operational Objectives

The B.Sc. (Medical Biotechnology) programme aims to help achieve the University's goal of achieving academic excellence by providing valuable resources to students.
The programme will provide opportunities to the faculty and staff to regularly upgrade their knowledge and skills by facilitating their participation in professional development programmes.
The programme will demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
The programme aims to continuously strive to build strong industry interaction, alumni networks and empanelment of expertise from industry.
The programme will improve processes and systems with an aim to attain national and international accreditations.
The programme will support students in order to facilitate campus recruitment, higher education or starting their own ventures.
The programme will act ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
The programme will create opportunities for international exposure for its students and faculty

5.16.4 Programme Learning Outcomes

Intended Learning Outcomes	
1	The student will be able to define integrated approach to knowledge factual and theoretical basis of Medical Biotechnology on the molecular, cellular, and organism levels.
2	The student will develop critical skills for the analysis of complex medical biotechnological problems to reach sustained conclusions using logical principles.

3	The student will be able to use IT tool show problem solving skills to develop, plan and implement practical solutions within a diverse range of medical biotechnology divisions.
4	The student will use knowledge and scientifically proven methodologies to perform experiments and result interpretation for the generation of informative data to provide meaningful definitive conclusions.
5	The student will be able to develop effective communication skills on various disciplines of medical biotechnology with community, apply knowledge to become effective written and oral communicators in their profession with tenacity in multidisciplinary settings
6	. The student will demonstrate effectively as an individual and as a member or leader of team in diverse disciplines and cultures of medical biotechnology for achieving logical rationale.
7	The student will recognize the responsibility of being a global citizen.
8	The student will apply to intercede with in the defined limits of bioethical principles to be implemented in the Biomedical research and academia.
9	The student will demonstrate knowledge and understanding of the technical and management principles in order to achieve the organizational goal in multidisciplinary environments.
10	The student will develop technical skills which will enable effective lifelong learning in the field of health and allied sciences.
11	The student will demonstrate knowledge and understanding of human biological system and their place in the natural environment, recognize the significance of societal and environmental contexts with special stress on sustainable development.
12	The student will analyze and investigate professional, ethical, societal, environmental and economic responsibility to the professional practice.

5.16.5 Programme Operational Outcomes

Operational Outcomes	
1	The B.Sc. (Medical Biotechnology) programme will help to achieve the University's goal of achieving academic excellence by providing valuable resources to students.
2	The programme will provide environment for innovation and research and academic facilities, technological resources for the intellectual growth of faculty and students
3	The programme will facilitate resources to cater diverse need of the students and faculty to achieve academia excellence.
4	The programme will develop building of strong relationships with corporates and utilize network of alumni to open communication channels and seek suggestions on curricula, pedagogy, syllabus and training..
5	The programme will **develop infrastructure and resources to** attain national and international accreditations.
6	The programme will extent support to the students to provide employment , avenues for higher education and starting their own ventures.
7	The programme will **ensure** transparency and good governance by inculcating ethics and values in teaching theory and research

8	The programme will invites delegates and speakers in conferences and seminars and provide various other opportunities for global exposure

5.16.6 Programme Educational Outcome Assessment for B.Sc. (Medical) Biotechnology

Sl. No.	PEO	PLO	Direct	Tool No for Direct Assessment	Target	Indirect	Tool No for Indirect Assessment	Target
1	The student shall be able to develop concepts in theoretical and applied aspects of Medical biotechnology	The student will be able to define integrated approach to knowledge factual and theoretical basis of Medical Biotechnology on the molecular, cellular, and organism levels.	*Comprehensive Exam	UG/PLO1/CE Framework	70% students shall pass the exam.	Student Exit Survey.	UG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
2	T The student shall be able to demonstrate systematic understanding of fundamental relevant questions and practical skills related to Medical biotechnology.	The student will develop critical skills for the analysis of complex medical biotechnological problems to reach sustained conclusions using logical principles.	Project report submission. *Comprehensive Exam	UG/PLO2/Project/ Viva-voce UG/PLO2/CE Framework	100% students will undertake and complete the dissertation	Feedback of Industry Internship Guide		The Industry Internship Guide rates the students between 3-5 range on the Likert Scale in the feedback.

3	The student shall be able to use and apply modern IT tools in relation to Medical Biotechnology.	The student will be able to use IT tool show problem solving skills to develop, plan and implement practical solutions within a diverse range of medical biotechnology divisions.	*Comprehensive Exam	UG/PLO3 /Quiz/class tests/CE Framework	80% students shall pass the exam	Student Exit Survey	UG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
4	The student shall be able to interpret and comprehend research problems, propose solutions and prioritize work.	The student will use knowledge and scientifically proven methodologies to perform experiments and result interpretation for the generation of informative data to provide meaningful definitive conclusions.	* Project Rubrics *Comprehensive Exam	UG/PLO4 /viva-voce UG/PLO4 /CE Framework	80% students shall pass the exam	Student Exit Survey	UG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
5	The student shall be able to employ effective communica	The student will be able to develop effective communication skills	Rubrics Communication skills		80% students shall achieve a minim	Student Exit Survey	UG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit

	tion skills on various topics of biosciences and Medical biotechnology	on various disciplines of medical biotechnology with community, apply knowledge to become effective written and oral communicators in their profession with tenacity in multidisciplinary settings.		UG/PLO5 / BC	um "Satisfactory" outcome attainment level			survey.
			*Comprehensive Exam	UG/PLO5 /CE Framework				
6	The student shall be able to attain leadership skills and perform responsibly as an individual, and as a member in diverse teams in multidisciplinary settings.	The student will demonstrate effectively as an individual and as a member or leader of team in diverse disciplines and cultures of medical biotechnology for achieving logical rationale.	* Behavioural Science rubrics		80% students shall achieve a minimum "Satisfactory" outcome attainment level	Student Exit Survey	UG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
				UG/PLO6 /BS				
			*Comprehensive Exam	UG/PLO6 /CE Framework				
7	The	The student	Rubrics		80%	Student Exit	UG/PLO/	80%

	student shall be able to develop into a responsible global citizen.	will recognize the responsibility of being a global citizen.	FBL	UG/PLO7/ UG/PLO7/CE Framework	students shall achieve a minimum "Satisfactory" outcome attainment level	Survey	Exit Survey	students shall score ≥ 75% in exit survey.
8	The student shall practice ethical behavior and shall know the ethical issues associated with current Biotechnological research	The student will apply to intercede with in the defined limits of bioethical principles to be implemented in the Biomedical research and academia.	*Plagiarism Checking of Project report, * Comprehensive Exam	UG/PLO8/CE Framework	100% Students are checked for plagiarism in NTCC report submissions and are allowed to appear for viva-voce upon obtaining plagiarism % below 15%.	Feedback of Industry Internship Guide		The Industry Internship Guide rates the students between 3-5 range on the Likert Scale in the feedback.

9	The student shall be able to develop management and entrepreneurship skills.	The student will demonstrate knowledge and understanding of the technical and management principles in order to achieve the organizational goal in multidisciplinary environments.	Section 7of comprehensive exam. ---------- * Project report submission.	UG/PLO9/EMP	70% student shall pass the exam. 100% students shall submit the project reports.	Student Exit Survey	UG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
			*Comprehensive Exam	UG/PLO9/CE Framework			UG/PLO/	
10	The student shall be able to evaluate intellectual curiosity, and reflect the habit of life long learning.	The student will develop technical skills which will enable effective lifelong learning in the field of health and allied sciences.			70% students shall pass the exam	Student Exit Survey	UG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
			*Section 8 of Comprehensive Exam	UG/PLO10/CE Framework				

11	The student shall be able to analyze the interrelationship between environment, social and economic sustainability.	The student will demonstrate knowledge and understanding of human biological system and their place in the natural environment, recognize the significance of societal and environmental contexts with special stress on sustainable development.	*Section 9 of Comprehensive Exam	UG/PLO11/CE Framework	70% students shall pass the exam	Student Exit Survey	UG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
12	The student shall be able to apply biotechnology to fulfil societal needs from time to time.	The student will analyze and investigate professional, ethical, societal, environmental and economic responsibility to the professional practice.	*Comprehensive Exam,	UG/PLO12/CE Framework	70% students shall pass the exam.			

5.16.7 Student Learning Assessment for B. Sc.(H) Medical Biotechnology

Mapping of Intended Programme Learning Outcomes to Broad-Based Programme Educational Objectives (PEOs)

The broad-based student learning goals identified in Section I above encompass the intended student learning outcomes as articulated in this section, and are general composites or summaries of these outcomes. These relationships are summarized in the outcomes-to-goals mapping below (**Note: √ in a**

given cell of the table indicates the intended learning outcome in that row is associated with the learning goal in that column.):

PEO/PLO	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PEO 7	PEO 8	PEO 9	PEO 10	PEO 11	PEO 12
PLO 1	☑	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐
PLO 2	☑	☑	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐
PLO 3	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐
PLO 4	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐
PLO 5	☐	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐
PLO 6	☐	☐	☐	☐	☐	☑	☑	☐	☐	☐	☐	☐
PLO 7	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑
PLO 8	☐	☐	☐	☐	☐	☐	☐	☑	☑	☐	☐	☑
PLO 9	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	☐	☑
PLO 10	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐
PLO 11	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐
PLO 12	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑

5.17 B.Sc. (Hons) Zoology

5.17.1 Mission Statement

Programme Mission
"To provide basic education in the area of Zoology and related areas of applied sciences, and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong, yearning for perfection and courage of conviction and action.

5.17.2 Programme Educational Objectives (PEOs)

1.	The student shall be able to develop concepts in theoretical and applied aspects of Zoology
2.	The student shall develop critical skills for the analysis of complex medical biotechnological problems to reach sustained conclusions using logical principles
3.	The student shall be able to use and apply modern IT tools in relation to zoology.
4.	The student shall be able to interpret and comprehend research problems, propose

	solutions and prioritize work.
5.	The student shall be able to employ effective communication skills on various topics of biosciences and zoology
6.	The student shall be able to attain leadership skills and perform responsibly as an individual, and as a member in diverse teams in multidisciplinary settings.
7.	The student shall be able to develop into a responsible global citizen.
8.	The student shall practice ethical behaviour and shall know the ethical issues associated with current animal research
9.	The student shall be able to develop management and entrepreneurship skills.
10.	The student shall be able to evaluate intellectual curiosity, and reflect the habit of life long learning.
11.	The student shall be able to analyze the interrelationship between environment, social and economic sustainability.
12.	The student shall be able to apply zoological sciences to fulfil societal needs from time to time.

5.17.3 Programme Operational Objectives

	The B.Sc. (Zoology) programme aims to help achieve the University's goal of achieving academic excellence by providing valuable resources to students
1.	The programme will facilitate an academically conducive environment for holistic development of students
2.	The programme will provide environment for innovation and research for the intellectual growth of faculty and students.
3.	The programme will aim to inculcate core values of the university and ethical conduct amongst students, faculty and staff.
4.	The programme will encourage cultural diversity and a sense of social and environmental responsibility.
5.	The programme will facilitate building of strong relationships with corporates and utilize network of alumni to open communication channels and seek suggestions on curricula, pedagogy, syllabus and training.
6.	The programme will facilitate to create employment opportunities and also support students to develop entrepreneurial skills.
7.	The B.Sc. (Zoology) programme aims to help achieve the University's goal of achieving academic excellence by providing valuable resources to students

5.17.4 Programme Learning Outcomes

Intended Learning Outcomes	
1.	The student will define integrated approach to knowledge factual and theoretical basis of Zoology.
2.	The student will develop critical skills for the analysis of complex zoological problems to reach sustained conclusions using logical principles.
3.	The student will be able to use IT tool show problem solving skills to develop, plan and implement practical solutions within a diverse range of zoology divisions.
4.	The student will use knowledge and scientifically proven methodologies to perform experiments and result interpretation for the generation of informative data to provide meaningful definitive conclusions.
5.	The student will develop effective communication skills on various disciplines of Animal science with community, apply knowledge to become effective written and oral communicators in their profession with tenacity in multidisciplinary settings.
6.	The student will demonstrate effectively as an individual and as a member or leader of team in diverse disciplines.
7.	The student will implement all characteristics of a truly responsible global citizen.
8.	The student will apply to intercede with in the defined limits of bioethical principles to be implemented in the Zoological research and academia.

9.	The student will demonstrate knowledge and understanding of the technical and management principles in order to achieve the organizational goal in multidisciplinary environments.
10.	The student will develop technical skills which will enable effective lifelong learning in the field of Animal and allied sciences.
11.	The student will demonstrate knowledge and understanding of animal biological system and their place in the natural environment.
12.	The student will analyze and investigate professional, ethical, societal, environmental and economic responsibility to the professional practice

5.17.5 Programme Operational Outcomes

POO 1	The B.Sc. (Zoology) programme aims to help achieve the University's goal of achieving academic excellence by providing valuable resources to students.
POO 2	The programme will facilitate an academically conducive environment for holistic development of students
POO 3	The programme will provide environment for innovation and research for the intellectual growth of faculty and students.
POO 4	The programme aims to inculcate core values of the university and ethical conduct amongst students, faculty and staff.
POO 5	The programme will encourage cultural diversity and a sense of social and environmental responsibility.
POO 6	The programme will facilitate building of strong relationships with corporates and utilize network of alumni to open communication channels and seek suggestions on curricula, pedagogy, syllabus and training.
POO 7	The programme will facilitate to create employment opportunities and also support students to develop entrepreneurial skills.

5.17.6 Programme Educational Outcome Assessment for B.Sc. (Hons) Zoology

Sl. No.	PEO	PLO	Direct	Tool No for Direct Assessment	Target	Indirect	Tool No for Indirect Assessment	Target
1	The student shall be able to develop concepts in theoretical and applied aspects of Zoology.	The student will define integrated approach to knowledge factual and theoretical basis of Zoology.	*Comprehensive Exam	UG/PLO1/ CE Framework	70% students shall pass the exam.	Student Exit Survey.	UG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
2	The student shall be able to demonstrate systematic understandi	The student will develop critical skills for the analysis of complex zoological	Project report submission	UG/PLO2/ Project/Viva-voce	100% students will undertake and	Feedback of Industry Internship Guide		The Industry Internship Guide rates the students

	ng of fundamental relevant questions and practical skills related to Zoology.	problems to reach sustained conclusions using logical principles.	*Comprehensive Exam	UG/PLO2/ CE Framework	complete the dissertation			between 3-5 range on the Likert Scale in the feedback.
3	The student shall be able to use and apply modern IT tools in relation to zoology.	The student will be able to use IT tool show problem solving skills to develop, plan and implement practical solutions within a diverse range of zoology divisions.	*Section 3 of Comprehensive Exam	UG/PLO3/ Quiz/class tests/CE Framework	100% students shall able to leverage IT in order to complete their Assignments and Projects	Student Exit Survey	UG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
4	The student shall be able to interpret and comprehend research problems, propose solutions and prioritize work.	The student will use knowledge and scientifically proven methodologies to perform experiments and result interpretation for the generation of informative data to provide meaningful definitive conclusions.	Project report submission *Comprehensive Exam	UG/PLO4/ viva-voce UG/PLO4/ CE Framework	100% students shall complete their projects and submit the report	Student Exit Survey	UG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
5	The student shall be able to employ effective communication skills on various topics of biosciences and zoology .	The student will develop effective communication skills on various disciplines of Animal science with community,	Rubrics Communication Skills	UG/PLO5/ BC	80% students shall achieve a minimum of ”satisfactory” outco	Student Exit Survey	UG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.

		Apply knowledge to become effective written and oral communicators in their profession with tenacity in multidisciplinary settings.		UG/PLO5/ CE Framework	me attainment level.			
6	The student shall demonstrate effective and responsible action as an individual as well as in a team leader for achieving logical rationale and maintain accountability and output.	The student will demonstrate effectively as an individual and as a member or leader of team in diverse disciplines and cultures of Zoology for achieving logical rationale.	* Behavioural Science rubrics	UG/PLO6/ BS UG/PLO6/ CE Framework	80% students shall achieve a minimum of "satisfactory" outcome attainment level.	Student Exit Survey	UG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
7	The student shall be able to develop into a responsible global citizen.	The student will implement all characteristics of a truly responsible global citizen.	Rubrics Foreign language	UG/PLO7/ UG/PLO7/ CE Framework	80% students shall achieve a minimum of "satisfactory" outcome attainment level.	Student Exit Survey	UG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
8	The student shall practice ethical behaviour and shall know the ethical issues associated with current animal	The student will apply to intercede with in the defined limits of bioethical principles to be implemented in the Zoological research and academia.	*Plagiarism Checking of Project report,		100% Students are checked for plagiarism in NTCC report submissions and	Feedback of Industry Internship Guide		The Industry Internship Guide rates the students between 3-5 range on the Likert Scale in the

	research				are allowed to appear for viva-voce upon obtaining plagiarism % below 15%.			feedback.
			* Comprehensive Exam	UG/PLO8/ CE Framework				The University will adhere to zero tolerance towards use of unfair means
9	The student shall be able to develop management and entrepreneurship skills.	The student will demonstrate knowledge and understanding of the technical and management principles in order to achieve the organizational goal in multidisciplinary environments.	*Section 7 of Comprehensive Exam	UG/PLO9/ EMP	70% students shall pass the exam.	Student Exit Survey	UG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
			*Project report submission	UG/PLO9/ CE Framework	100% students shall submit the project report			
10	The student shall be able to evaluate intellectual curiosity, and reflect the habit of life long learning.	The student will develop technical skills which will enable effective lifelong learning in the field of Animal and allied sciences.	*Section 8 of Comprehensive Exam	UG/PLO10 /CE Framework	70% students shall pass the exam.	Student Exit Survey	UG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
11	The student shall be able to analyze the interrelationship between environment, social and economic sustainability.	The student will demonstrate knowledge and understanding of animal biological system and their place in the natural environment.	*Section 9 of Comprehensive Exam	UG/PLO11 /CE Framework	70% students shall pass the exam	Student Exit Survey	UG/PLO/	80% students shall score ≥ 75% in exit survey.

12	The student shall be able to apply zoological sciences to fulfil societal needs from time to time.	The student will analyze and investigate professional, ethical, societal, environmental and economic responsibility to the professional practice	*Comprehensive Exam,	UG/PLO12/CE Framework	70% students shall pass the exam.		Exit Survey	80% students shall score ≥ 75% in exit survey.

5.17.7 Student Learning Assessment for B.Sc. (Hons) Zoology

Matrix Of PEO`s and PLO`s

PEO/PLO	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PEO 7	PEO 8	PEO 9	PEO 10	PEO 11	PEO 12
PLO 1	☑	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐
PLO 2	☑	☑	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐
PLO 3	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐
PLO 4	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐
PLO 5	☐	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐
PLO 6	☐	☐	☐	☐	☐	☑	☑	☐	☐	☐	☐	☐
PLO 7	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑
PLO 8	☐	☐	☐	☐	☐	☐	☐	☑	☑	☐	☐	☑
PLO 9	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	☐	☑
PLO 10	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐
PLO 11	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐
PLO 12	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑

5.18 M. Sc. Biotechnology

5.18.1 Mission Statement

Programme Mission
To provide advanced education in the area of Biotechnology and in the futuristic and emerging frontier areas of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong, yearning for perfection and courage of conviction and action.

5.18.2 Programme Educational Objectives (PEOs)

1	The student shall be able to **develop** knowledge and skills to attain academic excellence in the field of Biotechnology.
2	The student shall **demonstrate** research skills to conduct research in the thrust areas of Biotechnology to benefit the society.
3	The student shall be able to **use** and **apply** modern IT tools to analyze the biological data to arrive at logical conclusions.
4	The student shall be able to **analyze** and **interpret** scientific data to solve technical, conceptual and abstract scientific problems.
5	The student shall be able to **develop** effective communication skills to disseminate technical information and ability to **write** effective reports and reviews for scientific journals.
6	The student shall be able to **demonstrate** effectiveness and responsibility as an individual as well as in a team while maintaining accountability and output.
7	The student shall be able to **develop** global citizenship skills to build a sustainable world community.
8	The student shall be able to **interpret** principles of ethics and apply them to develop sensitivity towards various social and cultural issues of the society.
9	The student shall be able **develop** networking and entrepreneurship skills and establish links with industry and alumni.
10	The student shall be able to **create** the virtue of lifelong learning.
11	The student shall be able to **create** and **develop** thought process for environmental preservation by developing environmentally sustainable technologies.
12	The student shall be able to **integrate** various aspects of biotechnology to achieve holistic and societal development.

5.18.3 Programme Operational Objectives

Programme Name – M. Sc. (Biotechnology)
Programme Operational Objectives
MSc. Biotechnology programme will create appropriate resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students.
The programme will provide opportunities and environment for innovation and research excellence for the intellectual growth of faculty and students.
The programme will demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
The programme will continuously strive to build strong industry interaction, alumni networks and empanelment of expertise from industry while proactively seeking suggestions on curricula and training.
The programme will continually improve processes and systems with an aim to attain national and international accreditations.
The programme will extend support to the students in order to facilitate campus recruitment, higher

education or starting their own ventures.
The programme will act ethically to ensure transparency and good governance while discharging various responsibilities to its stakeholders and execution of policies and programs.
The programme will create opportunities for international exposure for its students and faculty.

5.18.4 Programme Learning Outcomes

Intended Learning Outcomes	
1	The student will apply knowledge to develop critical thought and practical understanding of in the field of Biotechnology to find solutions for human benefits.
2	The student will identify, formulate, research literature, review existing knowledge and analyze complex molecular and biochemical problems to reach substantiated conclusions using principles of biology.
3	The student will apply modern IT tools for acquisition and analysis of biological data.
4	The student will demonstrate awareness of research principles and technical skills to plan independent Biotechnology research projects.
5	The student will develop appropriate level of communication skills to effectively disseminate research and technical information and shall be able to summarize scientific results; write effective reports and reviews in scientific journals.
6	The student will demonstrate the ability to work independently as individuals and flexibly within a team with effectiveness and responsibility.
7	The student will build skills to evolve into a responsible global citizen.
8	The student will develop sensitivity to environmental issues and concerns and shall understand principles of ethics within the framework and apply these principles for environmentally and culturally sensitive issues.
9	The student will apply management principles to manage one's own work and/or projects and ventures.
10	The student will organize the role of personal development, self-directed study and discovery in learning to develop life-long learning.
11	The student will develop appreciation for nature and the need for its preservation and conservation and demonstrate care for the environment by development of environmentally sustainable technologies.
12	The student will develop the capability to integrate theory, technical information and appropriate research methods for the benefit of society.

5.18. 5 Programme Operational Outcomes

Operational Outcomes	
1.	M.Sc. Biotechnology programme will promote use of appropriate methodology and pedagogical tools for teaching, learning and development.
2.	The programme will provide environment for innovation and research and academic facilities, technological resources for teaching and learning to the students.
3.	The programme will facilitate resources to cater diverse needs of the students and faculty to achieve academic excellence.
4.	The programme will develop and maintain strong relationship with research institutes,

	alumni and industry.
5.	The programme will develop infrastructure and resources to attain national and international accreditations.
6.	The programme will extend support to the students to provide employment, avenues for higher education and starting their own ventures.
7.	The programme will ensure transparency and good governance by integrating ethics and values in teaching, theory and practice.
8.	The programme will invite international delegates and speakers for seminars and conferences and provide various other opportunities for global exposure.

5.18.6 Programme Educational Outcome Assessment for M.Sc. Biotechnology

Sl. No.	PEO	PLO	Direct	Tool No for Direct Assessment	Target	Indirect	Tool No for Indirect Assessment	Target
1	The student shall be able to develop knowledge and skills to attain academic excellence in the field of Biotechnology.	The student will apply knowledge to develop critical thought and practical understanding of in the field of Biotechnology find solutions for human benefits.	*Comprehensive Exam	PG/PLO1/CE Framework	70% students shall pass the exam.	Student Exit Survey	PG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
2	The student shall demonstrate research skills to conduct research in the thrust areas of Biotechnology to benefit the society.	The student will identify, formulate, research literature, review existing knowledge and analyze complex molecular and biochemical problems to reach substantiated	Project report submission	PG/PLO2/Dissertation	100% students will undertake and complete the Project report	Feedback of Industry Internship Guide		The Industry Internship Guide rates the students between 3-5 range on the Likert Scale in the feedback.

		conclusions using principles of biology.	*Comprehensive Exam	PG/PLO2/CE Framework				
3	The student shall be able to use and apply modern IT tools to analyze the biological data to arrive at logical conclusions.	The student will apply modern IT tools for acquisition and analysis of biological data.	*Section 3 of Comprehensive Exam	PG/PLO3/CE Framework	70% students shall pass the comprehensive exam	Student Exit Survey	PG/PLO /Exit Survey	80% students shall score ≥ 75% in exit survey.
4	The student shall be able to analyze and interpret scientific data to solve technical, conceptual and abstract scientific problems.	The student will demonstrate awareness of research principles and technical skills to plan independent Biotechnology research projects.	Project report submission	PG/PLO4/ PG/PLO4/CE Framework	100% students shall complete their projects and submit the report	Student Exit Survey	PG/PLO /Exit Survey	80% students shall score ≥ 75% in exit survey.
5	The student shall be able to develop effective communication skills to disseminate technical informatio	The student will develop appropriate level of communication skills to effectively disseminate research	*Rubrics Communication skills		80% students shall achieve the minimum of "satisfactory" outcome attainment level	Student Exit Survey	PG/PLO /Exit Survey	80% students shall score ≥ 75% in exit survey.

	n and ability to write effective reports and reviews for scientific journals.	and technical information and shall be able to summarize scientific results; write effective reports and reviews in scientific journals.		PG/PLO5/ BC PG/PLO5/CE Framework				
6	The student shall be able to demonstrate effectiveness and responsibility as an individual as well as in a team while maintaining accountability and output.	The student will demonstrate the ability to work independently as individuals and flexibly within a team with effectiveness and responsibility.	* Behavioural Science rubrics * Comprehensive Exam	PG/PLO6/BS PG/PLO6/CE Framework	80% students shall achieve the minimum of "satisfactory" outcome attainment level	Student Exit Survey	PG/PLO /Exit Survey	80% students shall score ≥ 75% in exit survey.
7	The student shall be able to develop global citizenship skills to build a sustainable world community.	The student will build skills to evolve into a responsible global citizen.	* Rubrics FBL	UG/PLO7/CE Framework	80% students shall achieve the minimum of "satisfactory" outcome attainment level	Student Exit Survey	PG/PLO /Exit Survey	80% students shall score ≥ 75% in exit survey.

8	The student shall be able to interpret principles of ethics and apply them to develop sensitivity towards various environmental and cultural issues of the society.	The student will develop sensitivity to environmental issues and concerns and shall understand principles of ethics within the framework and apply these principles for environmentally and culturally sensitive issues.	*Plagiarism Checking of project report	PG/PLO8/CE Framework	100% Students are checked for plagiarism in NTCC report submissions and are allowed to appear for viva-voce upon obtaining plagiarism % below 15%.	Feedback of Industry Internship Guide		The Industry Internship Guide rates the students between 3-5 range on the Likert Scale in the feedback.
9	The student shall be able develop networking and entrepreneurship skills and establish links with industry and alumni.	The student will apply management principles to manage one's own work and/or projects and ventures.	Section 7 of comprehensive exam Project report submission	PG/PLO9/	70% students shall pass the exam 100% students shall submit the project reports	Student Exit Survey	PG/PLO /Exit Survey	80% students shall score ≥ 75% in exit survey.
10	The student shall be able to create the virtue of lifelong learning.	The student will organize the role of personal development, self-directed study and discovery in learning to develop life-long learning.	*Section 8 of Comprehensive Exam	PG/PLO10/CE Framework	70% students shall pass the exam	Student Exit Survey	PG/PLO /Exit Survey	80% students shall score ≥ 75% in exit survey.

11	The student shall be able to create and develop thought process for environmental preservation by developing environmentally sustainable technologies.	The student will develop appreciation for nature and the need for its preservation and conservation and demonstrate care for the environment by development of environmentally sustainable technologies.	*Section 9 of Comprehensive Exam	PG/PLO11/CE Framework	70% students shall pass the exam	Student Exit Survey	PG/PLO /Exit Survey	80% students shall score ≥ 75% in exit survey.
12	The student shall be able to integrate various aspects of biotechnology to achieve holistic and Societal development.	The student will develop the capability to integrate theory, technical information and appropriate research methods for the benefit of society.	*Comprehensive Exam	PG/PLO12/CE Framework	70% students shall pass the exam	Student Exit Survey	PG/PLO /Exit Survey	80% students shall score ≥ 75% in exit survey.

5.18.7 Mapping of Intended Programme Learning Outcomes to Broad-Based Programme Educational Objectives (PEOs)

The broad-based student learning goals identified in Section I above encompass the intended student learning outcomes as articulated in this section, and are general composites or summaries of these outcomes. These relationships are summarized in the outcomes-to-goals mapping below (**Note: √ in a given cell of the table indicates the intended learning outcome in that row is associated with the learning goal in that column**.):

Matrix Of PEO`s and PLO`s

PEO/PLO	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PEO 7	PEO 8	PEO 9	PEO 10	PEO 11	PEO 12
PLO 1	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
PLO 2	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☑
PLO 3	☐	☑	☑	☑	☐	☐	☑	☐	☐	☐	☐	☐
PLO 4	☑	☐	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐
PLO 5	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐
PLO 6	☐	☐	☐	☐	☑	☑	☐	☐	☑	☐	☐	☐
PLO 7	☑	☐	☑	☑	☐	☐	☑	☑	☐	☐	☐	☐
PLO 8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐
PLO 9	☑	☐	☐	☐	☐	☑	☐	☐	☑	☐	☐	☐
PLO 10	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐
PLO 11	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☐
PLO 12	☑	☑	☑	☑	☐	☐	☑	☐	☐	☐	☐	☑

5.19 M. Sc. Bioinformatics

5.19. 1 Mission Statement

Programme Mission
To provide advanced education in the area of Bioinformatics and in the futuristic and emerging frontier areas of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong, yearning for perfection and courage of conviction and action.

5.19.2 Programme Educational Objectives (PEOs)

1.	The student shall develop knowledge of bioinformatics, potentially utilized for life science research.
2.	The student shall be able to employ skills for exploration and investigation of problems in bioinformatics.
3.	The student shall design new biological solutions (workbench/algorithms) and analyze systematically the complex and specialized concepts in Bioinformatics.
4.	The student shall develop and investigate Bioinformatics based research projects.
5.	The students shall develop good communication and develop networking skills and establish links with industry and alumni.
6.	The student shall be able to demonstrate effectiveness and responsibility as an individual as well as in a team while maintaining accountability and output.
7.	To student shall be oriented to be a responsible global citizen.
8.	The student shall demonstrate knowledge of the ethical principles, law and IPR issues.
9.	The student shall extend short term trainings and dissertation projects in the area of Bioinformatics in various national or international laboratories for experiential learning.
10.	The student shall be able to use good managerial skills to enhance employment and

	entrepreneurship opportunities and able to create the virtue of lifelong learning.
11.	The student shall be able to create and develop thought process for environmental conservation by developing and implementing environmentally sustainable technologies.
12.	The student shall be able to apply both theoretical as well as practical concepts for the betterment of the society.

5.19.3 Programme Operational Objectives

1	MSc. Bioinformatics programme will create appropriate resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students.
2	The programme will provide opportunities and environment for innovation and research excellence for the intellectual growth of faculty and students.
3	The programme will demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
4	The programme will continuously strive to build strong industry interaction, alumni networks and empanelment of expertise from industry while proactively seeking suggestions on curricula and training.
5	The programme will continually improve processes and systems with an aim to attain national and international accreditations.
6	The programme will extend support to the students in order to facilitate campus recruitment, higher education or starting their own ventures.
7	The programme will act ethically to ensure transparency and good governance while discharging various responsibilities to its stakeholders and execution of policies and programs.
8	The programme will create opportunities for international exposure for its students and faculty.

5.19.4 Programme Learning Outcomes

Intended Learning Outcomes	
1.	The student will develop critical thought and practical understanding in the field of bioinformatics and ability to use knowledge and skills and work towards academic excellence.
2.	The student will be able to explore and investigate a devise solutions to a range of complex scientific problems of technical, conceptual or abstract nature.
3.	The student will design, identify and review systematically and critically appraise specialized concepts in theoretical and applied aspects of bioinformatics.
4.	The student will be able to relate research principles and technical skills to plan and execute bioinformatics research projects.
5.	The student will develop appropriate level of communication skills to effectively disseminate research and technical information.
6.	The student will create the ability to work independently as individuals and flexibly within a team with effectiveness and responsibility.
7.	The student will be oriented to be responsible global citizen.
8.	The student will be able to apply ethical principles in handling various issues concerning biotechnology and bioinformatics.

9.	The student will apply principles of project management to manage one's own work and/or project work as a member or a leader in a team, by work experience gathered through short term training / dissertation projects.
10.	The student will organize the role of personal development, self-directed study and discovery in learning to develop life-long learning.
11.	The student will be able to implement conservation of environment by using newer and better sustainable technologies.
12.	The student will integrate theory, technical information and appropriate research methods for advancement of science and society.

5.19.5 Programme Operational Outcomes

Operational Outcomes	
1.	M.Sc. Bioinformatics programme will promote use of appropriate methodology and pedagogical tools for teaching, learning and development.
2.	The programme will provide environment for innovation and research and academic facilities, technological resources for teaching and learning to the students.
3.	The programme will facilitate resources to cater diverse needs of the students and faculty to achieve academic excellence.
4.	The programme will develop and maintain strong relationship with research institutes, alumni and industry.
5.	The programme will develop infrastructure and resources to attain national and international accreditations.
6.	The programme will extend support to the students to provide employment, avenues for higher education and starting their own ventures.
7.	The programme will ensure transparency and good governance by integrating ethics and values in teaching, theory and practice.
8.	The programme will invite international delegates and speakers for seminars and conferences and provide various other opportunities for global exposure.

5.19.6 Programme Educational Outcome Assessment for M. Sc. Bioinformatics

Sl. No.	**PEO**	**PLO**	**Direct**	**Tool No. for Direct Assessment**	**Target**	**Indirect**	**Tool No. for Indirect Assessment**	**Target**
1	The student shall develop knowledge of bioinformatics, potentially utilized for life science research.	The student will develop critical thought and practical understanding in the field of bioinformatics and	*Comprehensive Exam	PG/PLO1/CE Framework	70% students shall pass the exam.	Student Exit Survey	PG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.

		ability to use knowledge and skills and work towards academic excellence.						
2	The student shall be able to employ skills for exploration and investigation of problems in bioinformatics.	The student will be able to explore and investigate and devise solutions to a range of complex scientific problems of technical, conceptual or abstract nature.	Project report submission	PG/PLO2/Dissertation	100% students will undertake and complete the project report	Feedback analysis of internship guide		The Industry Internship Guide rates the students between 3-5 ranges on the Likert Scale in the feedback.
			*	PG/PLO2/CE Framework				
3	The student shall design new biological solutions (workbench/algorithms) and analyze systematically the complex and specialized concepts in Bioinformatics.	The student will design, identify and review systematically and critically appraise specialized concepts in theoretical and applied aspects of bioinformatics.	*Section 3 Comprehensive Exam	PG/PLO3/CE Framework	70% students shal pass the section 3 of comprehensive exam.	Student Exit Survey	PG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.

4	The student shall develop and investigate Bioinformatics based research projects.	The student will be able to relate research principles and technical skills to plan and execute bioinformatics research projects.	*Project Report submission	PG/PLO4/CE Framework	100% students shall complete their project and submit the report	Student Exit Survey	PG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
5	The students shall develop good communication and develop networking skills and establish links with industry and alumni.	The student will develop appropriate level of communication skills to effectively disseminate research and technical information.	*Rubrics Communication skills	PG/PLO5/ BC	80% students shall achieve a minimum of 'satisfactory' outcome attainment level	Student Exit Survey	PG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
				PG/PLO5/CE Framework				
6	The student shall be able to demonstrate effectiveness and responsibility as an individual as well as in a team while maintaining accountability and output.	The student will create the ability to work independently as individuals and flexibly within a team with effectiveness and responsibility.	*Rubrics (Behavioral Science)	PG/PLO6/BS	80% students shall achieve a minimum of 'satisfactory' outcome attainment level	Feedback external internship guide	PG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
				PG/PLO6/CE Framework				

7	The student shall be oriented to be responsible global citizen.	The student will be oriented to be responsible global citizen.	Rubrics FBL	UG/PLO7/CE Framework	80% students shall achieve a minimum of 'satisfactory' outcome attainment level	Student Exit Survey	PG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
8	The student shall demonstrate knowledge of the ethical principles, law and IPR issues.	The student will be able to apply ethical principles in handling various issues concerning biotechnology and bioinformatics.	*Plagiarism Checking of Project Report		100% Students are checked for plagiarism in NTCC report submissions and are allowed to appear for viva-voce upon obtaining plagiarism % below 15%.	Feedback industry internship guide		The Industry Internship Guide rates the students between 3-5 range on the Likert Scale in the feedback.
				PG/PLO8/CE Framework				The University will adhere to zero tolerance towards use of unfair means
9	The student shall extend short term trainings and dissertation projects in the area of	The student will apply principles of project management to		PG/PLO9/	70% students shall pass the exam. 100%	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey

	Bioinformatics in various national or international laboratories.	manage one's own work and/or project work as a member or a leader in a team, by work experience gathered through short term training / dissertation projects.			students shall submit the project report.			.
			*Section 7 of Comprehensive Exam	PG/PLO9/CE Framework				
10	The student shall demonstrate good managerial skills to enhance employment and entrepreneurship opportunities and able to create the virtue of lifelong learning.	The student will organize the role of personal development, self-directed study and discovery in learning to develop life-long learning.			70% students shall pass the exam.	Student Exit Survey	PG/PLO /Exit Survey	80% students shall score ≥ 75% in exit survey .
			*Section 8 of Comprehensive Exam	PG/PLO10/CE Framework				
11	The student shall create and spread the thought-process for care of the environment by development of environmentally sustainable technologies.	The student will be able to implement conservation of environment by using newer and better sustainable technologies.	*Section 9 of Comprehensive Exam	PG/PLO11/CE Framework	70% students shall pass the exam	Student Exit Survey	PG/PLO / Exit Survey	80% students shall score ≥ 75% in exit survey .

12	The student shall be able to apply both theoretical as well as practical concepts for the betterment of the society.	The student will integrate theory, technical information and appropriate research methods for advancement of science and society.	*Comprehensive Exam	PG/PLO12/CE Framework	70% students shall pass the exam	Student Exit Survey	PG/PLO / Exit Survey	80% students shall score ≥ 75% in exit survey.

5.19.7 Matrix of PEOs and PLOs

PEO/PLO	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PEO 7	PEO 8	PEO 9	PEO 10	PEO 11	PEO 12
PLO 1	☑	☐	☑	☐	☐	☐	☑	☐	☐	☑	☐	☐
PLO 2	☐	☑	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐
PLO 3	☑	☑	☑	☑	☐	☐	☑	☐	☐	☑	☑	☐
PLO 4	☑	☑	☑	☑	☐	☐	☐	☐	☐	☑	☑	☐
PLO 5	☐	☐	☐	☐	☑	☑	☐	☐	☑	☑	☐	☐
PLO 6	☐	☐	☐	☐	☑	☑	☐	☐	☑	☐	☐	☐
PLO 7	☑	☑	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐
PLO 8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑
PLO 9	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☑	☑
PLO 10	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☐	☐
PLO 11	☐	☐	☐	☐	☐	☐	☐	☑	☐	☑	☑	☑
PLO 12	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑

5.20 M. Tech. Biotechnology

5.20.1 Mission Statement

Programme Mission
To provide applied education in the area of Biotechnology, related areas of applied science, humanity related areas and in the futuristic and emerging frontier areas of knowledge, learning and research and to develop the overall personality of students by making them not only excellent professionals but also good individuals with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong, yearning for perfection and courage of conviction and action.

5.20.2 Programme Educational Objectives (PEOs)

1.	The student shall be able **develop** knowledge and skills and practically apply the same in the field of Biotechnology to attain academic excellence.
2.	The student shall **demonstrate** research skills and conduct research in applied areas of Biotechnology thereby benefitting the society.
3.	The student shall be able to **use** and **apply** latest IT tools to analyses and interpret scientific data.
4.	The student shall be able to **innovate** in terms of new ideas and products and interpret research in biosciences and biotechnology in order to solve scientific problems.
5.	The student shall be able to **develop** confidence through effective communication skills and utilize the same in enhancing interpersonal skills.
6.	The student shall be able to **develop** leadership skills and perform responsibly as an individual as well as in a team while maintaining accountability and output.
7.	The student shall be able to **apply** their knowledge and skills throughout their careers and serve society at national and global level.
8.	The student shall be able to **practice** the ethical principles and articulate the innovation capabilities to help society and environment.
9.	The student shall be able to **develop** networking and entrepreneurship skills and create a strong network with the industry and alumni.
10.	The student shall be able to **develop** their skills and knowledge throughout their professional career, thereby adopting life-long learning.
11.	The student shall be able to **recognize** the need for environmental conservation and develop sustainable technologies.
12.	The student shall be able to **integrate** and **apply** the knowledge to solve problems in contemporary life sciences and society thereof.

5.20.3 Programme Operational Objectives

Programme Name – M. Tech. (Biotechnology)
Programme Operational Objectives
M. Tech. Biotechnology programme will **create** appropriate resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students.
The programme will **provide** opportunities and environment for innovation and research excellence for

the intellectual growth of faculty and students.
The programme will **demonstrate** sensitivity to the diverse needs of students and accordingly develop facilities and services.
The programme will continuously strive to **build** strong industry interaction, alumni networks and empanelment of expertise from industry while proactively seeking suggestions on curricula and training.
The programme will continually **improve** processes and systems with an aim to attain national and international accreditations.
The programme will **extend** support to the students in order to facilitate campus recruitment, higher education or starting their own ventures.
The programme will **act** ethically to ensure transparency and good governance while discharging various responsibilities to its stakeholders and execution of policies and programs.
The programme will **create** opportunities for international exposure for its students and faculty.

5.20.4 Programme Learning Outcomes

Intended Learning Outcomes	
1.	The student will attain innovative and relevant knowledge and understanding through inquiry, critique and synthesis and apply their knowledge to solve diverse problems and communicate their knowledge confidently and effectively.
2.	The student will solve problems using holistic approaches and techniques.
3.	The student will apply theoretical knowledge in Biotechnology, and practical experience of applications in these fields and gain insight into business and how projects are planned and carried out in the biotechnology industry.
4.	The student will critically devise reflective and transformative approaches to generate new ideas, artifacts, products and interpretations of viewing professional projects.
5.	The student will develop good communication skills and attain the confidence to approach employment with enthusiasm and knowledge to develop the ability to contribute to their community and the development of the industry in which they work.
6.	The student will develop interpersonal flexibility and confidence to engage across difference: interact with people from a variety of backgrounds and imagination to understand the viewpoints of others.
7.	The student will identify core subjects to focus on advances in key technologies & scientific understanding of how discoveries progress from the lab to the marketplace.
8.	The student will demonstrate ethically, environmentally and socially aware attitude as critical and responsible members of local, national, international and professional communities.
9.	The student will apply sound planning and organizational skills that promotes and contributes to the strategic planning of their enterprise or organization.
10.	The student will develop attitude or stance towards themselves and confident lifelong learners, committed to and capable of continuous collaborative and individual learning.
11.	The student will develop an ability to recognize environmental and social impacts and to provide leadership on sustainable approaches to complex problems.
12.	The student will create attitude and aspire to contribute to society in a full and meaningful way through their roles as members of local, national and global communities.

5.20.5 Programme Operational Outcomes

Operational Outcomes	
1.	M. Tech. Biotechnology programme will promote use of appropriate methodology and pedagogical tools for teaching, learning and development.
2.	The curriculum of the programme will be contemporary and relevant to meet research and industry requirements and benchmarked on global standards by incorporating feedback from all the stakeholders.
3.	The programme shall provide academic facilities, technological resources for teaching and learning to the students
4.	The student of the programme will earn achievements in intra and inter-university Extra Curricular activities.
5.	Faculty and students will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing body of Knowledge.
6.	The programme will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff.
7.	The programme will facilitate cultivation of cultural and environmental conservation values among students.
8.	The programme shall develop and maintain strong relationship with research institutes, alumni and industry.
9.	The programme shall invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure and will support all the students for quality placements or join family business or start their own venture
10.	The programme shall establish an internal quality cell for operational quality and process improvement for students.

5.20.6 Programme Educational Outcome Assessment for M. Tech. Biotechnology

Sl. No.	PEO	PLO	Direct	Tool No. for Direct Assessment	Target	Indirect	Tool No. for Indirect Assessment	Target
1	The student shall be able develop knowledge and skills and practically apply the same in the field of Biotechnology to attain academic	The student will attain and apply knowledge of Biotechnology to solve diverse problems and find solutions for human benefits.	*Comprehensive Exam	PG/PLO1/CE Framework	70% students shall pass the exam.	Student Exit Survey	PG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.

	excellence.							
2	The student shall demonstrate research skills and conduct research in applied areas of Biotechnology thereby benefitting the society.	The student will review and apply existing knowledge of Biotechnology and analyze complex molecular and biochemical problems to reach substantiated conclusions using principles of biology.	Project Report submission	PG/PLO2/Dissertation PG/PLO2/CE Framework	100% students will undertake and complete the Project Report	Feedback analysis of internship guide		The Industry Internship Guide rates the students between 3-5 ranges on the Likert Scale in the feedback.
3	The student shall be able to use and apply latest IT tools to analyse and interpret scientific data.	The student will apply modern IT tools for acquisition and analysis of biological data.	*Section 3 of Comprehensive Exam	PG/PLO3/CE Framework	70% students shall pass the comprehensive exam.	Student Exit Survey	PG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
4	The student shall be able to innovate in terms of new ideas and products and interpret research in biosciences and biotechnology in order to solve scientific problems.	The student will use research-based knowledge and scientifically proven methodology to analyze and apply to provide valid conclusions.	Project Report submission	PG/PLO4/CE Framework	100%students shall complete their project and submit the report.	Student Exit Survey	PG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.

5	The student shall be able to develop confidence through effective communication skills and utilize the same in enhancing interpersonal skills.	The student will develop good communication skills and attain the confidence to communicate effectively.	*Rubrics Communication skills	PG/PLO5/ BC PG/PLO5/CE Framework	80% students shall achieve a minimum of 'satisfactory' outcome attainment level	Student Exit Survey	PG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
6	The student shall be able to develop leadership skills and perform responsibly as an individual as well as in a team while maintaining accountability and output.	The student will relate effectively as an individual, and as a member in diverse teams in multidisciplinary settings.	*Rubrics Behavioural Science	PG/PLO6/BS PG/PLO6/CE Framework	80% students shall achieve a minimum of 'satisfactory' outcome attainment level	Student Exit Survey	PG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
7	The student shall be able to apply their knowledge and skills throughout their careers and serve society at national and global level.	The student will build skills to evolve into a responsible global citizen.	* Rubrics Foreign language	UG/PLO7/CE Framework	80% students shall achieve a minimum of 'satisfactory' outcome attainment level	Student Exit Survey	PG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
8	The student shall be able to practice the ethical principles and articulate	The student will demonstrate ethically, environmentally and socially	*Plagiarism Checking of Dissertation		100% Students are checked for plagiarism in NTCC report submissions and are allowed to appear for	Feedback industry internship guide		The Industry Internship Guide rates the students between 3-5

	the innovation capabilities to help society and environment.	aware attitude as critical and responsible members of local, national, international and professional communities.			viva-voce upon obtaining plagiarism % below 15%.			range on the Likert Scale in the feedback.
				PG/PLO8/CE Framework				
9	The student shall be able to develop networking and entrepreneurship skills and create a strong network with the industry and alumni.	The student will apply sound planning and organizational skills that promotes and contributes to the strategic planning of their enterprise or organization.	Section 7 of comprehensive exam.	PG/PLO9/	70% students shall pass the exam. 100% students shall submit the project report	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
			Project Report submission	PG/PLO9/CE Framework		Alumni Survey	PG/PLO/ Alumni Survey	80% students shall score ≥ 75% in exit survey.
10	The student shall be able to develop their skills and knowledge throughout their professional career, thereby adopting life-long learning.	The student will develop attitude or stance towards themselves and develop into confident lifelong learners, committed to and capable of continuous collaborative and individual learning.			70% students shall pass the exam.	Student Exit Survey	PG/PLO/Exit Survey	80% students shall score ≥ 75% in exit survey.
			*Section 8 of Comprehensive Exam	PG/PLO10/CE Framework				

11	The student shall be able to recognize the need for environmental conservation and develop sustainable technologies.	The student will develop ability to recognize environmental and social impacts and to provide leadership on sustainable approaches to complex problems.	*Section 9 of Comprehensive Exam	PG/PLO11/CE Framework	70% students shall pass the comprehensive exam	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.
12	The student shall be able to integrate and apply the knowledge to solve problems in contemporary life sciences and society thereof.	The student will create attitude and aspire to contribute to society in a full and meaningful way through their roles as members of local, national and global communities.	*Comprehensive Exam	PG/PLO12/CE Framework	70% students shall pass the comprehensive exam	Student Exit Survey	PG/PLO/ Exit Survey	80% students shall score ≥ 75% in exit survey.

5.20.7 Matrix Of PEO`s and PLO`s

PEO/PLO	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PEO 7	PEO 8	PEO 9	PEO 10	PEO 11	PEO 12
PLO 1	☑	☐	☑	☐	☐	☐	☑	☐	☐	☑	☐	☐
PLO 2	☐	☑	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐
PLO 3	☑	☑	☑	☑	☐	☐	☑	☐	☐	☑	☑	☐
PLO 4	☑	☑	☑	☑	☐	☐	☐	☐	☐	☑	☑	☐
PLO 5	☐	☐	☐	☐	☑	☑	☐	☐	☑	☑	☐	☐
PLO 6	☐	☐	☐	☐	☑	☑	☐	☐	☑	☐	☐	☐
PLO 7	☑	☑	☐	☑	☐	☐	☑	☐	☐	☐	☐	☐

PLO 8	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑
PLO 9	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☑	☑
PLO 10	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☐	☐
PLO 11	☐	☐	☐	☐	☐	☐	☐	☑	☐	☑	☑	☑
PLO 12	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑

Section VI:

Domain Operational Outcomes & Operational Outcome Assessment Plan

Operational Assessment

OPERATIONAL OUTCOME ASSESSMENT PLAN

Sl. No.	Broad-Based Operational Goals	Intended Operational Outcomes for the DBB	Assessment Measures/Methods for Intended Operational Outcomes	Performance objectives (Targets/Criteria
1	FBB intends to provide educational excellence in teaching/academic delivery.	1.1 FBB will promote use of appropriate methodology and pedagogical tools for teaching, learning and development.	• Student feedback of course faculty. • Faculty Qualifications and Experience Files.	• 80% faculty shall have satisfactory feedback. • 90% faculty shall be either Ph.D or have industry experience
		1.2 The curriculum will be contemporary and relevant to meet research and industry requirements and benchmarked on global standards by incorporating feedback from all the stakeholders.	• Stakeholders feedback, peer-group feedback and analysis of the same for incorporation in curriculum. • Minutes of Meetings of Area Advisory Board, Board of Studies and Academic Council.	• Curriculum shall be reviewed periodically (at least once in 3 years)
		1.3 The student of FBB will graduate in the stipulated time period	• Graduation rate in convocation report. • on completion of Registration period (N) • during extended period for (N+N for Ph.D, N+1+1 for PG and N+2+1 for UG)	• At least 85% students shall graduate on completion of registration period (N) • 15% or remaining shall pass during extended period for (N+N for Ph.D, N+1+1 for PG and N+2+1 for UG)
		1.4 University shall provide academic facilities, technological	• Teaching, learning aids, resources, such as labs, library, journals, database,	• 90% classrooms, teaching laboratories, computer labs., academic offices

		Resources for teaching and learning in FBB	softwares, Inventory of all technology equipment in classrooms, computer labs, academic offices, and faculty offices.	and faculty offices are equipped with technical equipments.
2	FBB will provide an academically conducive environment for holistic development of students.	2.1 The student of FBB will earn achievements in intra and inter-university Extra Curricular activities.	• Functional and area specific club, Committees, Sports Events, co-curricular and extra curricular activities and student's participation in inter institutional competition, under guidance of faculty members. • List of Award winners	• Every student and faculty member shall be a part of at least one club or committee.
3	FBB will facilitate environment for innovation and research excellence for the intellectual growth of faculty and students	3.1 Faculty and students will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing body of Knowledge.	Data about research work and other scholar activities such as: • Scholarship of teaching; published and unpublished articles, manuscripts, books, curriculum review and evaluation of teaching material. • Scholarship of Discovery: published articles, manuscripts, papers presented, dissertations/ thesis, • Scholarship of Integration: published articles, reviews, manuscripts, papers presented, dissertations/ thesis, conference and workshops attended. • Scholarship of application: published articles, manuscripts, papers presented,	• 100% faculty shall be engaged in at least one scholarly activity. • Students will be encouraged to perform research and also publish their findings.

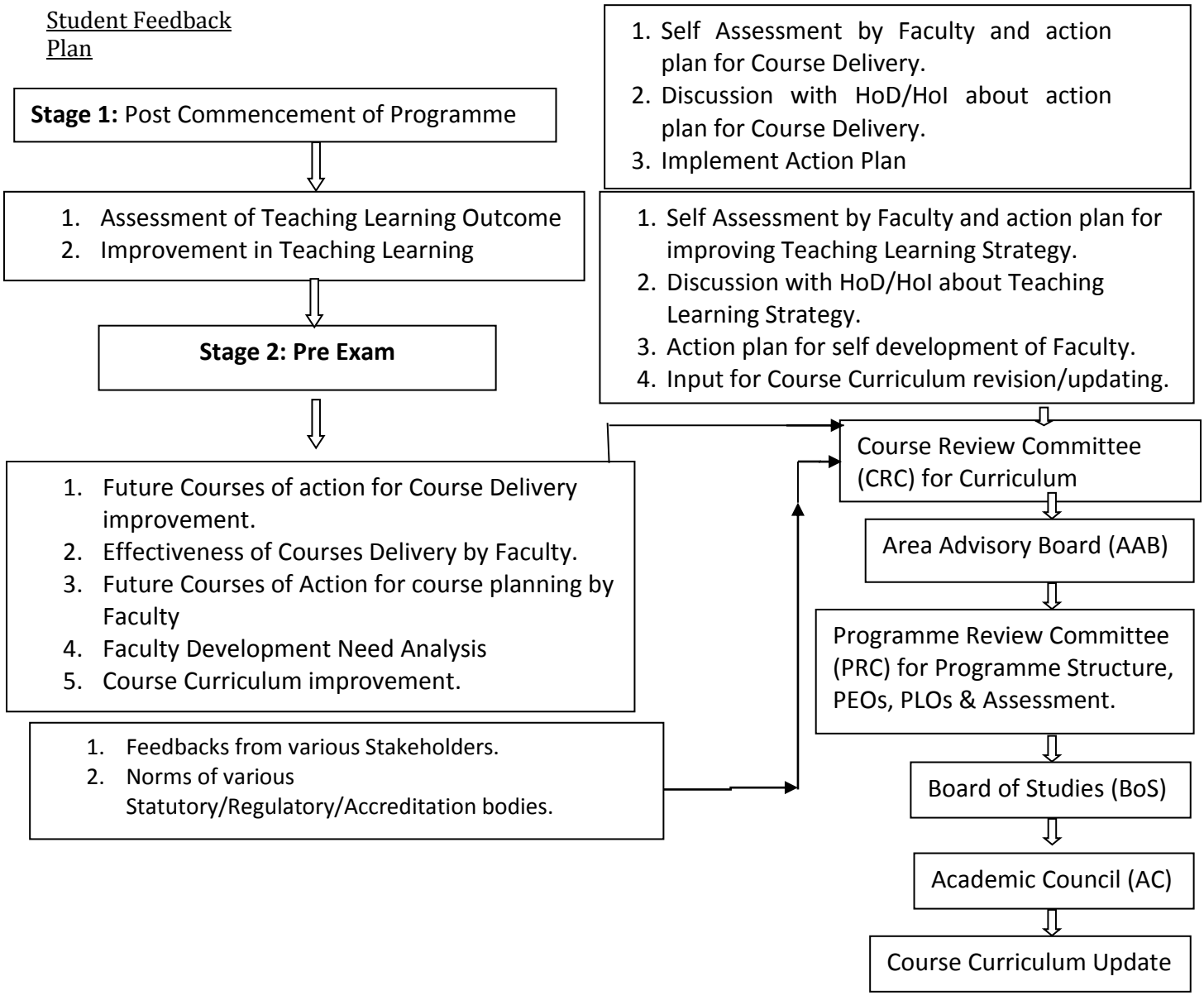
			consultations, programme evaluation. • Professional activities: Conference, workshop, professional meeting attendance, professional membership. • Patenting innovation- filing of provisional and complete patents	
4	FBB will facilitate cultivation of core values of the university and ethical conduct amongst students, faculty and staff.	4.1 The FBB will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff.	• Attrition Rate • Courses embedded in curriculum such as behavioural sciences • Human values quarter activities • Plagiarism check • Feedback system.	• Attrition rate shall be below 10% annually
5	FBB will encourage cultural diversity and a sense of social and environmental responsibility.	5.1 FBB will facilitate cultivation of cultural and environmental conservation values among students.	• List of community/social service projects • Organizing events related to sensitizing faculty and students to environmental and societal issues. • Day of Belongingness. • Celebration of festivals for culturally diverse set of students	• At least 80% faculty and students should be engaged in organizing/participating in various events and activities
6	FBB will provide ample opportunities for international exposure to faculty and students.	6.1 FBB will facilitate joint research collaborations, invite international delegates and speakers for seminars and conferences and various other opportunities	• Study Abroad Programme with renowned Universities • MoU with universities of repute • International Conferences/ Seminars/Workshops	• 100% students and faculty of DBB shall be offered opportunity for international exposure through various programmes designed for the purpose

		for global exposure.	• International Collaborative Research.	
7	FBB will formulate an alumni network and build strong relationship with industry while proactively seeking suggestions on curricula and training.	7.1 FBB shall develop and maintain strong relationship with research institutes, consultancies.	• Alumni Database • Industrial Interaction Forums	• Industry experts shall be invited at least once a semester.
		7.2 Shall maintain alumni network and keep the curriculum responsive to industry needs.	• Industry visits • Empanelment of experts from research organizations and industry on Area advisory board and Board of studies. • Career Counseling Sessions	• At least one member representing alumni and /or industry shall be on the board deciding program structure
8	FBB will facilitate employment opportunities and also support students to start their own ventures.	8.1 FBB will support all the students for quality placements or join family business or start their own venture	• Quality of placements (company profile, job profile, salary package offered) • List of students placed. • List of industries visiting campus • List of students opting for and securing higher education	• 80% students shall either be placed or shall opt for higher education or shall join family business or shall start their own ventures.
9	FBB will implement good governance in discharge of responsibilities and execution of policies and programs	9.1 FBB shall establish an internal quality cell for operational quality and process improvement.	Reports of various: • Statutory bodies, • Accreditation bodies, • External evaluators report. • BSI Report. • Quality Audit Report by QAE.	• FBB shall conduct periodic meetings as per regulations

Section VII

Linkage of outcomes assessment with strategic planning

STRATEGIC PROCESS OF CONTINUOUS IMPROVEMENTS



Section – VIII

APPENDICES

RUBRICS

PROGRAMME OUTCOME ASSESSMENT FOR COMMUNICATION SKILLS THROUGH RUBRICS

Amity University Uttar Pradesh has designed this outcome assessment plan with an objective to assess the programme outcome for communication skills through rubrics and evaluate the satisfactory implementation of the programme.

1. Short Title, Application and Commencement

1.1 The Assessment Plan may be called **Programme Outcome Assessment (POA) for Communication Skills (CS) through Rubrics.**

1.2 The Assessment Plan shall apply to all the students of Amity University, Noida Campus.

1.3 The Assessment Plan shall come into force with effect from the date of approval.

2. Introduction

The Communication Skills courses aim at improving the quality of verbal and non-verbal communication of students of Amity University by enabling them to learn this important life skill through a systematic implementation of the courses by incorporating them in the various programmes run by the departments. It is a planned course designed at improving effective communication by combining a set of skills including visual codes and signals, engaged listening and the ability to communicate assertively.

The Assessment methods are ways to ascertain ("measure") student achievement levels associated with stated student learning outcomes (SLOs). Programs are free to select assessment methods appropriate to their discipline or service but the choices must be valid and reliable.

Amity University acknowledges that as an educational provider it has a unique responsibility to provide a rationale for assigning grades to subjectively scored assessments. A rubric is a powerful communication tool and when shared among constituents it communicates in concrete and observable terms what we value most. It also provides a means to clarify our vision of excellence and conveys it to our students.

3. Objectives of PROA of CS through Rubrics

i. To assess the intended student learning outcome of the course being implemented.
ii. To evaluate if the recipients have been capable of developing an engaging and responsive communication style.
iii. To reflect on the development of communication skills as a tool to sustain in a modern globalized workplace.
iv. To help students understand what the desired performance is and what it looks like.

4. Guidelines

A) The composition of the **PROA Committee of CS through Rubrics** shall be:

a) HOI/Nominee (Host Institution)
b) PL/Programme Coordinator
c) Core Faculty/Member Corporate Resource Center
d) Communication Skills Faculty

B) Functions :

The Committee shall be responsible for:

- Organizing the Board and implementation of Rub
-

- rics
- Preparing list of students for the board
- Scheduling of the implementation of Rubrics in the Annual Academic Planning
- Liasoning with the concerned **PROA Committee** for the implementation of the Rubrics
- The HOI would suggest dates for implementation of the Rubrics to the concerned institution. The said dates would be confirmed by the HOI- AIESR & AICC
- The Boards for the implementation of the Rubrics would be conducted at a designated place specified by the concerned HOI.
- The Institutional **PROA Committee** would be responsible for the arrangement of resources for the smooth implementation of the Rubrics.
- The Institutional **PROA Committee** will also be responsible for compilation and submission of results to the Controller of Examinations.
- The Board after the completion of implementation of Rubrics will submit the assessment countersigned by all designated members to the concerned HOI.
- A copy of attendance sheet needs to be maintained by the respective institution as well as the concerned Communication Skills faculty.

C) Assessment:

a) On the completion of every even semester the student would be evaluated on the basis of four descriptors which are in tandem with the course objectives and SLOs of courses taught in every two successive semester.
b) The descriptors are evaluated on the basis of parameters listed below :
a) Unsatisfactory
b) Needs Improvement
c) Satisfactory
d) Proficient
e) Distinguished

D) The Institutional **PROA Committee** will also be responsible for compilation and submission of results to the Controller of Examinations.

E) Scale for Assessment

1. The student would be rated for the descriptor on the parameters mentioned. The parameters are assigned weightage which is as follows:

0	Unsatisfactory
1	Needs Improvement
2	Satisfactory
3	Proficient
4	Distinguished

2. A score of the student would be generated for all descriptors and would be analyzed according to the mentioned scale.

<=8	Needs Improvement
09-11	Satisfactory
12-14	Partly Achieved
15-16	Fully Achieved

3. We would have to generate this assessment for all sections and then calculate the same for the complete programme.

4. The compiled result sheets student-vise, section-vise, and programme-vise need to be submitted by the constituted **PROA Committee** to the concerned HOI to be further handed over to the Controller of Examinations.

5. Process:

Amity University follows a systematic Process commencing from the delivery of the course modules to conduct of group discussions and presentations and finally evaluate the effectiveness of Programme in terms of learning outcomes through implementation of Rubrics. The process is as follows:

6) Evaluate the effectiveness of Programme through feedback

An important function of the **PROA Committee** is to assess the impact of communication skills which is very essential for continuous improvement and to assess whether the objectives of the various programmes are realized. This will also help to identify the gaps for further improvement of the courses to help the students to face the challenges of the present day globalized competitive environment.

This can be done through a graphical analysis after the completion of each semester.

Faculty of Arts, Humanities & Social Sciences and Journalism/ Mass Communication/ Media
Rubrics for Assessment of Communication Skills for 1st Year of Three Year Undergraduate Programme

ASSESSMENT PARAMETERS:

- Verbal communication
- Non-verbal communication

TOOLS USED FOR ASSESSMENT:

- Written Test
- Group Discussion
- Presentations

COMPOSITION OF ASSESSMENT BOARD

- Communication Skills Faculty
- Program Leader/ Program Co-coordinator

- Any other senior faculty

SCORE SHEET: INDIVIDUAL

If the student scores between	Outcome Attainment Levels
<=8	Needs improvement
9-11	Satisfactory
12-14	Partly Achieved
15-16	Fully Achieved

***Students scoring 9 or above fall in the passing criteria.**

SCORE SHEET: PROGRAMME/ BATCH

Outcome Attainment Levels	Percentage of Students
Needs improvement	
Satisfactory	
Partly Achieved	
Fully Achieved	

Communication Skills – UG

Name : _____ Enrolment No :_____ Programme : _____

Components	Unsatisfactory (0)	Needs Improvement (1)	Satisfactory (2)	Proficient (3)	Distinguished (4)	Score
Usage of Grammar	The learner is unable to use correct grammar in paragraphs and in other forms of written communication	The learner is able to manifest proper usage of basics of grammar in paragraphs and in other forms of written communication	The learner exhibits proficiency in correct usage of simple grammatical concepts and in other forms of written communication	The learner shows advanced proficiency in correct usage of simple grammatical concepts and in other forms of written communication	The learner shows advanced proficiency in correct usage of complex grammatical concepts and in other forms of written communication	
Linguistic Accuracy in Oral Communication	The learner is unable to use appropriate accent and intonation	The learner is able to use appropriate accent and intonation	The learner is able to use suitable accent and intonation	The learner is able to show developed proficiency in delivering proper accent and intonation	The learner is able to show expertise in delivering the subtle nuances of a developed accent and intonation	

Aspects of Verbal Communication	The learner is unable to manifest communicative competence with the 7c's of communication	The learner is able to manifest communicative competence with the 7c's of communication	The learner shows proficiency in the manifestation of communicative competence with the 7c's of communication	The learner shows developed proficiency in the understanding and manifestation of communicative competence with the 7c's of communication	The learner will be able to apply analytical capability in comprehension of complex texts with communicative competence with the 7c's of communication	
Significance of Non-Verbal Communication	The learner exhibits inadequate comprehension of visual codes and KOPPACT.	The learner exhibits developing proficiency in understanding of visual codes and KOPPACT	The learner exhibits increased proficiency in understanding of visual codes and KOPPACT	The learner exhibits developed proficiency in understanding and KOPPACT	The learner's Visual codes are in concurrence with the verbal communication and KOPPACT	
					Total Score	

Faculty of Arts, Humanities & Social Sciences and Journalism/ Mass Communication/ Media Rubrics for Assessment of Communication Skills for 2nd Year of Three Year Undergraduate Programme

ASSESSMENT PARAMETERS:

- Verbal communication
- Non-verbal communication

TOOLS USED FOR ASSESSMENT:

- Written Test
- Group Discussion
- Presentations

COMPOSITION OF ASSESSMENT BOARD

- Communication Skills Faculty
- Program Leader/ Program Co-coordinator
- Any other senior faculty

SCORE SHEET: INDIVIDUAL

If the student scores between	Outcome Attainment Levels
<=8	Needs improvement
9-11	Satisfactory
12-14	Partly Achieved
15-16	Fully Achieved

***Students scoring 9 or above fall in the passing criteria.**

SCORE SHEET: PROGRAMME/ BATCH

Outcome Attainment Levels	Percentage of Students
Needs improvement	
Satisfactory	
Partly Achieved	
Fully Achieved	

Communication Skills – UG

Name : _____ Enrolment No :_____ Programme : _____

Components	Unsatisfactory (0)	Needs Improvement (1)	Satisfactory (2)	Proficient (3)	Distinguished (4)	Score
Aspects of Written Communication	The learner displays inability to write class notes, memos and other forms of correspondence	The learner displays ability to write class notes, memos and other forms of correspondence	The learner displays proficiency in writing class notes, memos and other forms of correspondence	The learner displays competence in writing class notes, memos and other forms of correspondence	The learner displays advanced capability in all forms of written communication	
Comprehending Letter Writing	The learner is unable to write structured letters and format is not evident	The learner is able to write structured letter but format is not evident	The learner is able to write structured letters with proper usage of format	The learner is competent in writing simple formal letters with correct content and form	The learner shows advanced proficiency in writing letters which is relevant to the particular situation	
Employability Skills	The learner is unable to understand the basics of dynamics of GD and interview skills	The learner can partially understand the basics of dynamics of GD and interview skills	The learner can respond to the dynamics of GD and interview skills	The learner can respond to the dynamics of GD and interview skills with confidence	The learner can deliver competent and accurate and befitting replies during GD and Interview	
Effective Resume Writing	The learner displays inability in writing Resume using appropriate language and format	The learner displays partial improvement in writing the resume by using satisfactory language and format	The learner can write resume satisfactorily using the language and format according to instructions	The learner can write effective resume using the language and format in an innovative manner	The learner can write flawless resumes by using language and format convincingly with precision	

Total Score	

Faculty of Arts, Humanities & Social Sciences and Journalism/ Mass Communication/ Media Rubrics for Assessment of Communication Skills for 3rd Year of Three Year Undergraduate Programme

ASSESSMENT PARAMETERS:

- Verbal communication
- Non-verbal communication

TOOLS USED FOR ASSESSMENT:

- Written Test
- Group Discussion
- Presentations

COMPOSITION OF ASSESSMENT BOARD

- Communication Skills Faculty
- Program Leader/ Program Co-coordinator
- Any other senior faculty

SCORE SHEET: INDIVIDUAL

If the student scores between	Outcome Attainment Levels
<=8	Needs improvement
9-11	Satisfactory
12-14	Partly Achieved
15-16	Fully Achieved

***Students scoring 9 or above fall in the passing criteria.**

SCORE SHEET: PROGRAMME/ BATCH

Outcome Attainment Levels	Percentage of Students
Needs improvement	
Satisfactory	
Partly Achieved	
Fully Achieved	

Communication Skills – UG

Name : _____ Enrolment No :_____ Programme : _____

Components	Unsatisfactory (0)	Needs Improvement (1)	Satisfactory (2)	Proficient (3)	Distinguished (4)	Score
Enhancing Comprehension & vocabulary	The learner is unable to comprehend simple texts and also lacks vocabulary skills	The learner is able to comprehend simple texts and shows improvement in vocabulary skills	The learner is able to comprehend complex texts and improved vocabulary skills	The learner is able to grasp the meaning of complex texts and shows expertise in vocabulary skills	The learner is able to fathom the intricacies of complex texts and effectively uses complicated vocabulary	

Presentation Skills and its Delivery	The learner hesitates throughout the delivery with pauses and weak conclusions	The learner delivers improved presentation with adequate conclusion	The learner delivers fluent presentation with satisfactory conclusion	The learner displays effective oratory with confident conclusion	The learner displays fluent oratory with persuasive and apt conclusion	
Professional Interpersonal Skills	The learner is unable to comprehend the traits of team work in the workplace	The learner is able to comprehend the traits of team work in the workplace	The learner comprehends the importance of coordination and team work in the workplace	The learner comprehends the importance of initiative, coordination and team work in the workplace	The learner comprehends the importance of motivation, initiative and team work in the workplace	
Visual Codes and Etiquettes	The learner exhibits inadequate comprehension of visual codes with improper etiquettes	The learner exhibits developing proficiency in understanding of visual codes with basic etiquettes	The learner exhibits increased proficiency in understanding of visual codes and develops basic etiquettes	The learner exhibits developed proficiency in understanding and comprehension of visual codes with expertise in basic etiquettes	The learner's Visual codes are in concord with the verbal communication and exhibits efficiency, accuracy in basic etiquettes	
					Total Score	

Faculty of Arts, Humanities & Social Sciences and Journalism/ Mass Communication/ Media

Rubrics for Assessment of Communication Skills for 1st Year of Postgraduate Programme

ASSESSMENT PARAMETERS:

- Verbal communication
- Non-verbal communication

TOOLS USED FOR ASSESSMENT:

- Written Test
- Group Discussion
- Presentations

COMPOSITION OF ASSESSMENT BOARD

- Communication Skills Faculty
- Program Leader/ Program Co-coordinator
- Any other senior faculty

SCORE SHEET: INDIVIDUAL

If the student scores between	Outcome Attainment Levels
<=8	Needs improvement
9-11	Satisfactory

12-14	Partly Achieved
15-16	Fully Achieved

***Students scoring 9 or above fall in the passing criteria.**

SCORE SHEET: PROGRAMME/ BATCH

Outcome Attainment Levels	Percentage of Students
Needs improvement	
Satisfactory	
Partly Achieved	
Fully Achieved	

Communication Skills – PG

Name : _____ Enrolment No :_____ Programme : _____

Components	Unsatisfactory (0)	Needs Improvement (1)	Satisfactory (2)	Proficient (3)	Distinguished (4)	Score
Effective use of LSRW Skills	The learner is unable to manifest analytical capability along with coherence, clarity and conciseness	The learner is able to manifest analytical capability but not with coherence, clarity and conciseness	The learner shows proficiency in the manifestation of analytical capability with coherence, clarity and conciseness	The learner shows developed proficiency in the understanding and manifestation of analytical capability with comprehensive coherence, clarity and conciseness	The learner will be able to apply analytical capability in comprehension of complex texts with comprehensive coherence, clarity and conciseness	
Fluency in oral communication	The learner is unable to initiate communication with clarity in ideas	Learner adequately starts the communication but lacks clarity in ideas	Ability of learner to coherently initiate the communication with clarity in ideas	Learner impressively opens the argument with innovative use of ideas	Learner demonstrates capability of a confident and suave initiation of communication with complex use of ideas	
Interviews and its assessment	The learner is unable to fathom interview questions and shows feelings of nervousness	The learner can partially fathom the interview questions and feels slightly nervous	The learner can respond to interview questions with ease and comfort	The learner can respond to interview questions with confidence and alacrity	The learner can deliver competent and accurate and befitting replies to interview questions with conviction and poise	

Resume and its formats	The learner displays inability in writing Resume by using correct language and format	The learner displays partial improvement in writing the resume by using satisfactory language and format	The learner can write resume satisfactorily using the language and format according to instructions	The learner can write effective resume using the language and format in an innovative manner	The learner can write customised resumes by using language and format convincingly with precision	
					Total Score	

Faculty of Arts, Humanities & Social Sciences and Journalism/ Mass Communication/ Media

Rubrics for Assessment of Communication Skills for 2nd Year of Postgraduate Programme

ASSESSMENT PARAMETERS:

- Verbal communication
- Non-verbal communication

TOOLS USED FOR ASSESSMENT:

- Written Test
- Group Discussion
- Presentations

COMPOSITION OF ASSESSMENT BOARD

- Communication Skills Faculty
- Program Leader/ Program Co-coordinator
- Any other senior faculty

SCORE SHEET: INDIVIDUAL

If the student scores between	Outcome Attainment Levels
<=8	Needs improvement
9-11	Satisfactory
12-14	Partly Achieved
15-16	Fully Achieved

***Students scoring 9 or above fall in the passing criteria.**

SCORE SHEET: PROGRAMME/ BATCH

Outcome Attainment Levels	Percentage of Students
Needs improvement	
Satisfactory	
Partly Achieved	
Fully Achieved	

Communication Skills – PG

Name : _____ Enrolment No :_____ Programme : _____

Components	Unsatisfactory (0)	Needs Improvement (1)	Satisfactory (2)	Proficient (3)	Distinguished (4)	Score
Presentation-Fluency and Delivery	The learner halts and mumbles throughout the delivery with forced pauses and weak conclusions	The learner delivers Improved presentation with adequate conclusion	The learner delivers fluent presentation with satisfactory conclusion	The learner displays effective oratory with confident rhetoric and apt conclusion	The learner displays fluent oratory with persuasive rhetoric and apt conclusion	
Official Correspondence and Technical Writing	The learner displays inappropriate style with inaccurate sentence structures filled with lexical ambiguity	The learner develops formal style with clarity in thought and expression	The learner displays developed formal style and clarity in thought and expression	The learner displays efficiency in writing effective e-mails, reports, articles and drafting policies	The learner displays ability in drafting and all other forms of technical writing	
Cultural Diversity in Professional Environment	The learner displays inability in adjusting to other cultures and fails to realise importance of maintaining rapport in multicultural context	The learner displays basic idea of cultural diversity in multicultural context	The learner displays good understanding of cultural diversity in multicultural context	The learner demonstrates good understanding of cultural diversity and importance of maintaining rapport in multicultural context	The learner will demonstrate respect for other cultures and simultaneously maintain rapport in multicultural context	
Soft Skills	The learner demonstrates inappropriate gestures, postures, eye movement and inadequate use of space language	The learner delivers appropriate body language which suits the occasion and apt use of space language	The learner delivers suitable body language and also makes maximum use of proxemics	The learner carries perfect body language and also modifies it based on the situation and also displays perfect use of space and definition of zones through the use	The learner carries perfect and original body language along with optimum and perfect use of proxemics	
					Total Score	

Faculty of Arts, Humanities & Social Sciences and Journalism/ Mass Communication/ Media

Rubrics for Assessment of Communication Skills for 3rd Year of Three Year Postgraduate Programme

ASSESSMENT PARAMETERS:

- Verbal communication

- Non-verbal communication

TOOLS USED FOR ASSESSMENT:

- Written Test
- Group Discussion
- Presentations

COMPOSITION OF ASSESSMENT BOARD

- Communication Skills Faculty
- Program Leader/ Program Co-coordinator
- Any other senior faculty

SCORE SHEET: INDIVIDUAL

If the student scores between	Outcome Attainment Levels
<=4	Needs improvement
5-6	Satisfactory
7	Partly Achieved
8	Fully Achieved

***Students scoring 5 or above fall in the passing criteria.**

SCORE SHEET: PROGRAMME/ BATCH

Outcome Attainment Levels	Percentage of Students
Needs improvement	
Satisfactory	
Partly Achieved	
Fully Achieved	

Communication Skills – PG

Name : _____ Enrolment No :_____ Programme : _____

Components	Unsatisfactory (0)	Needs Improvement (1)	Satisfactory (2)	Proficient (3)	Distinguished (4)	Score
Extemporaneity and speaking publicly	The learner is impervious to the requirement of the target group and fails to handle interactions and discussions	The learner falls inappropriately short of gauging audience reaction and shows adequate management and participation in interactions	The learner tries to improve comprehension of audience reaction and shows appropriate management and participation in interactions	The learner appropriately fathoms and delivers to suit response of target audience and shows originality in interactions	The learner is perfect in gauging and responding to the target audience and manifests creative & befitting administration of interactions/discussions	

Soft Skills	The learner demonstrates inappropriate gestures, postures, eye movement and inadequate use of space language	The learner delivers appropriate body language which suits the occasion and apt use of space language	The learner delivers suitable body language and also makes maximum use of proxemics	The learner carries perfect body language and also modifies it based on the situation and also displays perfect use of space and definition of zones through the use	The learner carries perfect and original body language along with optimum and perfect use of proxemics	
					Total Score	

Faculty of Arts, Humanities & Social Sciences and Journalism/ Mass Communication/ Media
Rubrics for Assessment of Business Communication for 1st Year of Masters Programme

ASSESSMENT PARAMETERS:

- Verbal communication
- Non-verbal communication

TOOLS USED FOR ASSESSMENT:

- Written Test
- Presentations
- Group Discussion

COMPOSITION OF ASSESSMENT BOARD

- Business Communication Faculty
- Program Leader/ Program Co-coordinator
- Any other senior faculty

SCORE SHEET: INDIVIDUAL

If the student scores between	Outcome Attainment Levels
<=8	Needs improvement
9-11	Satisfactory
12-14	Partly Achieved
15-16	Fully Achieved

***Students scoring 9 or above fall in the passing criteria.**

SCORE SHEET: PROGRAMME/ BATCH

Outcome Attainment Levels	Percentage of Students
Needs improvement	
Satisfactory	
Partly Achieved	
Fully Achieved	

Business Communication – PG Name : _____ Enrolment No :_____ Programme : _____						
Components	**Unsatisfactory (0)**	**Needs Improvement (1)**	**Satisfactory (2)**	**Proficient (3)**	**Distinguished (4)**	**Score**
Communication & Its Process	The learner is unable to understand the process of formal communication in organizations	The learner is able to understand the Nature but cannot understand the process Formal Communication in organizations	The learner shows proficiency in the understanding of the Nature and Process of Formal Communication in organizations	The learner can understand the complex nature of Communication processes in organizations	The learner can apply the nature and process of formal Communication effectively	
Barriers to Effective Communication	The learner cannot understand the barriers to formal communication	The learner has basic understanding of the barriers of formal communication	The learner has a clear understanding of the barriers to effective formal communication	The learner understands the complexity of the barriers to formal communication and can remove some of the barriers	The learner has advanced knowledge of barriers to formal communication and can communicate effectively.	
Strategies for Effective Business Correspondence	The learner cannot write Business Reports and Letters in the proper language and format	The learner can write Business Reports and Letters with some inaccuracies in language and format	The learner can write Business Reports and Letters in a satisfactory manner	The learner can write Business Reports and Letters in an effective manner	The learner can write Business Reports and Letters in a convincing manner	
Job Applications Resumes	The learner cannot write Resumes in proper language and format	The learner cannot write Resume without errors in language and format	The learner can write Resume in a satisfactory manner	The learner can write effective resumes	The learner can write convincing win-win resumes	
					Total Score	

Faculty of Arts, Humanities & Social Sciences and Journalism/ Mass Communication/ Media
Rubrics for Assessment of Business Communication for 2nd Year of Masters
Programme

ASSESSMENT PARAMETERS:

- Verbal communication
- Non-verbal communication

TOOLS USED FOR ASSESSMENT:

- Written Test
- Presentations

- Group Discussion

COMPOSITION OF ASSESSMENT BOARD

- Business Communication Faculty
- Program Leader/ Program Co-coordinator
- Any other senior faculty

SCORE SHEET: INDIVIDUAL

If the student scores between	Outcome Attainment Levels
<=8	Needs improvement
9-11	Satisfactory
12-14	Partly Achieved
15-16	Fully Achieved

***Students scoring 9 or above fall in the passing criteria.**

SCORE SHEET: PROGRAMME/ BATCH

Outcome Attainment Levels	Percentage of Students
Needs improvement	
Satisfactory	
Partly Achieved	
Fully Achieved	

Business Communication – PG

Name : _____ Enrolment No :_____ Programme : _____

Components	Unsatisfactory (0)	Needs Improvement (1)	Satisfactory (2)	Proficient (3)	Distinguished (4)	Score
Formal Presentations Information Packaging and its delivery	The learner does not seem to understand the nature of clarity and confidence in formal presentations.	The learner has a basic understanding of clarity and confidence in formal presentation	The learner can give presentation and with confidence in formal context	The learner can give presentation in formal context with clarity and ease	The learner is proficient in information packaging and can make presentation with precision, clarity and confidence in the formal context	
Interviews as stepping stones to placements	The learner cannot understand the questions of interviewer and feels nervous	The learner can only partially respond to the questions of interviewer and feels slightly nervous	The learner can respond to questions of interviewer with ease.	The learner can respond to questions of the interviewer with clarity and ease and make a favorable impression.	The learner can competently and accurately handle the interviews	

Workplace Communication amidst different cultures	The learner does not have much idea of respecting other cultures and finds it difficult to maintain rapport in the multicultural context	The learner shows some awareness of cultural diversity and understands its important in the multicultural context	The learner has good understanding of cultural diversity in multicultural context	The learner has good understanding of cultural diversity importance of maintaining rapport in multicultural context	The learner will demonstrate respect for other cultures and at the same time maintain rapport in the multicultural context	
Etiquettes, Ethics & rules of conduct in the corporate world	The student has deficient knowledge of business ethics and organizational protocol	The student has a very basic idea of business ethics and organizational protocol	The student demonstrates knowledge of business ethics and organizational protocol	The student is completely aware of business ethics and organizational protocol	The student can behave with proper business etiquette and follow organizational protocol	
					Total Score	

Faculty of Arts, Humanities & Social Sciences and Journalism/ Mass Communication/ Media
Rubrics for Assessment of Communication Skills for 1st Year of Five Year Integrated Undergraduate & Postgraduate Programme

ASSESSMENT PARAMETERS:

- Verbal communication
- Non-verbal communication

TOOLS USED FOR ASSESSMENT:

- Written Test
- Group Discussion
- Presentations

COMPOSITION OF ASSESSMENT BOARD

- Communication Skills Faculty
- Program Leader/ Program Co-coordinator
- Any other senior faculty

SCORE SHEET: INDIVIDUAL

If the student scores between	Outcome Attainment Levels
<=8	Needs improvement
9-11	Satisfactory
12-14	Partly Achieved
15-16	Fully Achieved

***Students scoring 9 or above fall in the passing criteria.**

SCORE SHEET: PROGRAMME/ BATCH

Outcome Attainment Levels	Percentage of Students

Needs improvement	
Satisfactory	
Partly Achieved	
Fully Achieved	

Communication Skills – UG+PG INTEGRATED (5 YRS)

Name : _____ Enrolment No :_____ Programme : _____

Components	Unsatisfactory (0)	Needs Improvement (1)	Satisfactory (2)	Proficient (3)	Distinguished (4)	Score
Usage of Grammar	The learner is unable to use correct grammar in paragraphs and in other forms of written communication	The learner is able to manifest proper usage of basics of grammar in paragraphs and in other forms of written communication	The learner exhibits proficiency in correct usage of simple grammatical concepts and in other forms of written communication	The learner shows advanced proficiency in correct usage of simple grammatical concepts and in other forms of written communication	The learner shows advanced proficiency in correct usage of complex grammatical concepts and in other forms of written communication	
Linguistic Accuracy in Oral Communication	The learner is unable to use appropriate accent and intonation	The learner is able to use appropriate accent and intonation	The learner is able to use suitable accent and intonation	The learner is able to show developed proficiency in delivering proper accent and intonation	The learner is able to show expertise in delivering the subtle nuances of a developed accent and intonation	
Aspects of Verbal Communication	The learner is unable to manifest communicative competence with the 7c's of communication	The learner is able to manifest communicative competence with the 7c's of communication	The learner shows proficiency in the manifestation of communicative competence with the 7c's of communication	The learner shows developed proficiency in the understanding and manifestation of communicative competence with the 7c's of communication	The learner will be able to apply analytical capability in comprehension of complex texts with communicative competence with the 7c's of communication	
Significance of Non-Verbal Communication	The learner exhibits inadequate comprehension of visual codes and KOPPACT.	The learner exhibits developing proficiency in understanding of visual codes and KOPPACT	The learner exhibits increased proficiency in understanding of visual codes and KOPPACT	The learner exhibits developed proficiency in understanding and KOPPACT	The learner's Visual codes are in concurrence with the verbal communication and KOPPACT	

Total Score	

Faculty of Arts, Humanities & Social Sciences and Journalism/ Mass Communication/ Media
Rubrics for Assessment of Communication Skills for 2nd Year of Five Year Integrated Undergraduate & Postgraduate Programme

ASSESSMENT PARAMETERS:

- Verbal communication
- Non-verbal communication

TOOLS USED FOR ASSESSMENT:

- Written Test
- Group Discussion
- Presentations

COMPOSITION OF ASSESSMENT BOARD

- Communication Skills Faculty
- Program Leader/ Program Co-coordinator
- Any other senior faculty

SCORE SHEET: INDIVIDUAL

If the student scores between	Outcome Attainment Levels
<=8	Needs improvement
9-11	Satisfactory
12-14	Partly Achieved
15-16	Fully Achieved

***Students scoring 9 or above fall in the passing criteria.**

SCORE SHEET: PROGRAMME/ BATCH

Outcome Attainment Levels	Percentage of Students
Needs improvement	
Satisfactory	
Partly Achieved	
Fully Achieved	

Communication Skills – UG+PG INTEGRATED (5 YRS)

Name : _____ Enrolment No :_____ Programme : _____

Components	Unsatisfactory (0)	Needs Improvement (1)	Satisfactory (2)	Proficient (3)	Distinguished (4)	Score
Aspects of Written Communication	The learner displays inability to write class notes, memos and other forms of correspondence	The learner displays ability to write class notes, memos and other forms of correspondence	The learner displays proficiency in writing class notes, memos and other forms of correspondence	The learner displays competence in writing class notes, memos and other forms of correspondence	The learner displays advanced capability in all forms of written communication	
Comprehending Letter Writing	The learner is unable to write structured letters and format is not evident	The learner is able to write structured letter but format is not evident	The learner is able to write structured letters with proper usage of format	The learner is competent in writing simple formal letters with correct content and form	The learner shows advanced proficiency in writing letters which is relevant to the particular situation	
Employability Skills	The learner is unable to understand the basics of dynamics of GD and interview skills	The learner can partially understand the basics of dynamics of GD and interview skills	The learner can respond to the dynamics of GD and interview skills	The learner can respond to the dynamics of GD and interview skills with confidence	The learner can deliver competent and accurate and befitting replies during GD and Interview	
Effective Resume Writing	The learner displays inability in writing Resume using appropriate language and format	The learner displays partial improvement in writing the resume by using satisfactory language and format	The learner can write resume satisfactorily using the language and format according to instructions	The learner can write effective resume using the language and format in an innovative manner	The learner can write flawless resumes by using language and format convincingly with precision	
					Total Score	

Faculty of Arts, Humanities & Social Sciences and Journalism/ Mass Communication/ Media
Rubrics for Assessment of Communication Skills for 3rd year of Five Year Integrated Undergraduate & Postgraduate Programme

ASSESSMENT PARAMETERS:

- Verbal communication
- Non-verbal communication

TOOLS USED FOR ASSESSMENT:

- Written Test
- Group Discussion
- Presentations

COMPOSITION OF ASSESSMENT BOARD

- Communication Skills Faculty
- Program Leader/ Program Co-coordinator
- Any other senior faculty

SCORE SHEET: INDIVIDUAL

If the student scores between	Outcome Attainment Levels
<=8	Needs improvement
9-11	Satisfactory
12-14	Partly Achieved
15-16	Fully Achieved

***Students scoring 9 or above fall in the passing criteria.**

SCORE SHEET: PROGRAMME/ BATCH

Outcome Attainment Levels	Percentage of Students
Needs improvement	
Satisfactory	
Partly Achieved	
Fully Achieved	

Communication Skills – UG + PG Integrated (5 Yrs)

Name : _____ Enrolment No :_____ Programme : _____

Components	Unsatisfactory (0)	Needs Improvement (1)	Satisfactory (2)	Proficient (3)	Distinguished(4)	Score
Enhancing Comprehension & vocabulary	The learner is unable to comprehend simple texts and also lacks vocabulary skills	The learner is able to comprehend simple texts and shows improvement in vocabulary skills	The learner is able to comprehend complex texts and improved vocabulary skills	The learner is able to grasp the meaning of complex texts and shows expertise in vocabulary skills	The learner is able to fathom the intricacies of complex texts and effectively uses complicated vocabulary	
Presentation Skills and its Delivery	The learner hesitates throughout the delivery with pauses and weak conclusions	The learner delivers improved presentation with adequate conclusion	The learner delivers fluent presentation with satisfactory conclusion	The learner displays effective oratory with confident conclusion	The learner displays fluent oratory with persuasive and apt conclusion	

Professional Interpersonal Skills	The learner is unable to comprehend the traits of team work in the workplace	The learner is able to comprehend the traits of team work in the workplace	The learner comprehends the importance of coordination and team work in the workplace	The learner comprehends the importance of initiative, coordination and team work in the workplace	The learner comprehends the importance of motivation, initiative and team work in the workplace	
Visual Codes and Etiquettes	The learner exhibits inadequate comprehension of visual codes with improper etiquettes	The learner exhibits developing proficiency in understanding of visual codes with basic etiquettes	The learner exhibits increased proficiency in understanding of visual codes and develops basic etiquettes	The learner exhibits developed proficiency in understanding and comprehension of visual codes with expertise in basic etiquettes	The learner's Visual codes are in concord with the verbal communication and exhibits efficiency, accuracy in basic etiquettes	
					Total Score	

Faculty of Arts, Humanities & Social Sciences and Journalism/ Mass Communication/ Media
Rubrics for Assessment of Communication Skills for 4th Year of Five Year Integrated Undergraduate & Postgraduate Programme

ASSESSMENT PARAMETERS:

- Verbal communication
- Non-verbal communication

TOOLS USED FOR ASSESSMENT:

- Written Test
- Group Discussion
- Presentations

COMPOSITION OF ASSESSMENT BOARD

- Communication Skills Faculty
- Program Leader/ Program Co-coordinator
- Any other senior faculty

SCORE SHEET: INDIVIDUAL

If the student scores between	Outcome Attainment Levels
<=8	Needs improvement
9-11	Satisfactory
12-14	Partly Achieved
15-16	Fully Achieved

***Students scoring 9 or above fall in the passing criteria.**

SCORE SHEET: PROGRAMME/ BATCH

Outcome Attainment Levels	Percentage of Students

Needs improvement	
Satisfactory	
Partly Achieved	
Fully Achieved	

Communication Skills – UG+PG INTEGRATED (5 YRS)

Name : _____ Enrolment No :_____Programme : _____

Components	Unsatisfactory (0)	Needs Improvement (1)	Satisfactory (2)	Proficient (3)	Distinguished (4)	Score
Enhancing Competence in Workplace Communication	The learner is not able to showcase basic comprehension of the intricacies of office communication	The learner is able to showcase basic comprehension of the intricacies of office communication	The learner is able to showcase developed comprehension of the intricacies of office communication	The learner is able to showcase advanced comprehension of the intricacies of office communication	The learner is able to showcase expert comprehension of the intricacies of office communication	
Effective Business Correspondence	The learner is unable to write different kinds of business correspondence in proper language and format	The learner is able to write different kinds of business correspondence in proper language and format	The learner delivers satisfactory performance in writing different kinds of business correspondence in correct language and format	The learner can effectively write different kinds of business correspondence in appropriate language and format	The learner can convincingly write all kinds of business correspondence in apt language and format	
Importance of Cross Cultural Communication in Professional Environment	The learner is unable to understand the nuances of cultural adjustment and the sensitivity attached to it	The learner is able to understand the basic nuances of cultural adjustment and the sensitivity attached to it	The learner displays appropriate understanding of cultural adjustment and the sensitivity attached to it	The learner demonstrates effective understanding of cultural adjustment and the sensitivity attached to it	The learner will demonstrate apt understanding of cultural adjustment and the sensitivity attached to it	
Enhancing Public Speaking Skills	The learner is unable to speak fluently and fails to handle interactions and discussions	The learner is able to speak fluently but fails to handle interactions and discussions	The learner is able to speak fluently and handles interactions and discussions	The learner appropriately speaks and confidently handles interactions and discussions	The learner speaks perfectly and effectively handles interactions and discussions	
					TOTAL SCORE	

Faculty of Arts, Humanities & Social Sciences and Journalism/ Mass Communication/ Media
Rubrics for Assessment of Communication Skills for 5th Year of Five Year Integrated Undergraduate & Postgraduate Programme

ASSESSMENT PARAMETERS:

- Verbal communication
- Non-verbal communication

TOOLS USED FOR ASSESSMENT:

- Written Test
- Group Discussion
- Presentations

COMPOSITION OF ASSESSMENT BOARD

- Communication Skills Faculty
- Program Leader/ Program Co-coordinator
- Any other senior faculty

SCORE SHEET: INDIVIDUAL

If the student scores between	Outcome Attainment Levels
<=8	Needs improvement
9-11	Satisfactory
12-14	Partly Achieved
15-16	Fully Achieved

***Students scoring 9 or above fall in the passing criteria.**

SCORE SHEET: PROGRAMME/ BATCH

Outcome Attainment Levels	Percentage of Students
Needs improvement	
Satisfactory	
Partly Achieved	
Fully Achieved	

Communication Skills – UG+PG INTEGRATED (5 YRS)

Name : _____ Enrolment No :_____ Programme : _____

Components	Unsatisfactory (0)	Needs Improvement (1)	Satisfactory (2)	Proficient (3)	Distinguished (4)	Score
Essentials of Creative Writing for Media	The learner is unable to understand the fundamentals of creative writing.	The learner is able to understand the nuances of writing skills specifically meant for media and TV content writing.	The learner shows proficiency in the understanding of formal writing with emphasis on writing for media.	The learner can understand the complexities of creative writing.	The learner should be able to write articles, short stories and novella.	
Barriers to professional language use	The learner cannot understand the barriers of professional language.	The learner develops basic understanding of the barriers of professional use of language.	The learner understands how to use language to his advantage.	The learner understands the complexities of using jargons, clichés, euphemism and code switching.	The learner distinguishes himself in the field of creative writing, content writing, advertisements, scripts for media and brochures.	

Professional Communication in Global Context	The learner displays inability in analysing the complexity of cross functional communication and application of the language	The learner displays ability in analysing the complexity of cross functional communication but incapability in application of the language	The learner displays developed ability in analysing the complexity of cross functional communication and capability in application of the language	The learner displays proficiency in analysing the complexity of cross functional communication and effectiveness in application of the language	The learner displays innovativeness in analysing the complexity of cross functional communication and competence in application of the language	
Developing Contextual Communication	The learner displays inability in identifying the context of communication and lacks skill to describe the theme with precision	The learner displays ability in identification of formal and informal contexts and developing impactful content	The learner displays increased ability in identification of formal and informal contexts and develops original content	The learner displays proficiency developing case based communication and effectiveness in creation of original content	The learner displays advanced proficiency in analysis and constructive criticism of context and uses good rhetoric and design in different professional communication.	
					TOTAL SCORE	

Behavioral Science – PG Name:_____ Enrolment No.:_____ Programme:_____							
Sl. NO.	**Description of Rubrics**	**Unsatisfactory (0)**	**Needs Improvement (1)**	**Satisfactory (2)**	**Proficient (3)**	**Distinguished (4)**	**Score**
1	Able to Understand Self with reference to strength and Weakness	The JOS Does not reflect the conceptual understanding	The JOS slightly reflects the conceptual understanding	The JOS moderately reflects the conceptual understanding	The JOS mostly reflects the conceptual understanding	The JOS completely reflect the conceptual understanding	
2	Able to display and demonstrate the concept of Self and associated areas& its application	The individual's JOS did not cover relevant information of the application based learning	The individual's JOS slightly covered relevant information of the application based learning	The individual's JOS somewhat covered relevant information of the application based learning	The individual's JOS mostly covered relevant information of the application based learning	The individual's JOS completely covered relevant information of the application based learning	
3	Able to Understand and demonstrate the management of conflict	The individual did not initiate and scored low in demonstration of conflict resolution.	The individual slightly initiated and scored relatively better than low in demonstration of conflict resolution.	The individual initiated and scored average on demonstration of conflict resolution.	The individual initiated and scored moderately on demonstration of conflict resolution.	The individual effectively initiated and scored high on demonstration of conflict resolution.	
4	Able to Understand and demonstrate interpersonal communication for enhanced interpersonal Relationship	The individual did not initiate and did not exhibit the clarity in terms of interpersonal communication for enhanced interpersonal Relationship	The individual slightly initiated and did exhibit the clarity in terms of better than low interpersonal communication for enhanced interpersonal Relationship	The individual initiated and did exhibit average on the clarity in terms interpersonal communication for enhanced interpersonal Relationship	The individual initiated and did exhibit moderately on demonstration of interpersonal communication for enhanced interpersonal Relationship.	The individual effectively initiated and did exhibit average high on demonstration interpersonal communication for enhanced interpersonal Relationship.	
5	The student would be able to engage in collaborative learning with team members to achieve a shared goal.	The individual could not engage at all and collaborative learning with team members to achieve a shared goal	The individual could not engage much in collaborative learning with team members to achieve a shared goal	The individual could somewhat engage in collaborative learning with team members to achieve a shared goal	The individual could moderately engage in collaborative learning with team members to achieve a shared goal	The individual could completely engage in collaborative learning with team members to achieve a shared goal	

6	The student would be able to engage in articulation of strengths and weaknesses of team members and constructively evaluate others' work.	The individual could not engage at all in articulation of strengths and weaknesses of team members and constructively evaluate others' work	The individual could not engage much in articulation of strengths and weaknesses of team members and constructively evaluate others' work	The individual could somewhat in articulation of strengths and weaknesses of team members and constructively evaluate others' work	The individual could moderately engage in articulation of strengths and weaknesses of team members and constructively evaluate others' work	The individual could completely comprehend engage in articulation of strengths and weaknesses of team members and constructively evaluate others' work	
7	Able to demonstrate the learning of leadership concept and developing own style of leadership	The individual could not demonstrate the learning of leadership concept and developing own style of leadership	The individual could slightly demonstrate the learning of leadership concept and developing own style of leadership	The individual could somewhat demonstrate the learning of leadership concept and developing own style of leadership	The individual could moderately demonstrate the learning of leadership concept and developing own style of leadership	The individual could completely demonstrate the learning of leadership concept and developing own style of leadership	
8	Able to demonstrate the learning of excellence	The individual could not demonstrate the learning of excellence	The individual could slightly demonstrate the learning of excellence	The individual could somewhat demonstrate the learning of excellence	The individual could moderately demonstrate the learning of excellence	The individual could completely demonstrate the learning of excellence	
9	Ability to demonstration of enhanced personal effectiveness	The individual scored low in demonstration of enhanced personal effectiveness.	The individual slightly scored relatively better than low in demonstration of enhanced personal effectiveness.	The individual scored average on demonstration of enhanced personal effectiveness.	The individual initiated and scored moderately on demonstration of enhanced personal effectiveness.	The individual effectively initiated and scored high on demonstration of enhanced personal effectiveness.	
10	Able to Understand and comprehend the concept of lifelong learning through social practices and ethical behavior	The individual could not demonstrate practicing the concept of lifelong learning through social practices and ethical behavior.	The individual could slightly demonstrate practicing the concept of lifelong learning through social practices and ethical behavior.	The individual could average demonstrate practicing the concept of lifelong learning through social practices and ethical behavior.	The individual could moderately demonstrate practicing the concept of lifelong learning through social practices and ethical behavior.	The individual could fully demonstrate practicing the concept of lifelong learning through social practices and ethical behavior.	

Total Score	

If the student scores between	Outcome Attainment Levels
<=20	Needs improvement
21-27	Satisfactory
28-34	Partly Achieved
35-40	Fully Achieved

Behavioral Science – UG

Name:_____ Enrolment No.:_____ Programme:_____

Sl. No.	Description of Rubrics	UNSATISFACTORY (0)	NEEDS IMPROVEMENT (1)	SATISFACTORY (2)	PROFICIENT (3)	DISTINGUISHED (4)	Score
1	Able to Understand Self with reference to strength and Weakness	The JOS Does not reflect the conceptual understanding	The JOS slightly reflects the conceptual understanding	The JOS moderately reflects the conceptual understanding	The JOS mostly reflects the conceptual understanding	The JOS completely reflect the conceptual understanding	
2	Able to display and demonstrate Self Confidence	The individual's JOS did not cover relevant information of the application based learning	The individual's JOS slightly covered relevant information of the application based learning	The individual's JOS somewhat covered relevant information of the application based learning	The individual's JOS mostly covered relevant information of the application based learning	The individual's JOS completely covered relevant information of the application based learning	
3	Able to apply the techniques of Impression management	The individual did not demonstrate critical thinking and analytical ability in reference techniques of Impression management	The individual did not demonstrate critical thinking and analytical ability in reference to techniques of Impression management	The individual somewhat demonstrated critical thinking and analytical ability in reference to techniques of Impression management	The individual mostly demonstrated critical thinking and analytical ability in reference to techniques of Impression management	The individual completely demonstrated critical thinking and analytical ability in reference to techniques of Impression management	

4	Able to recognize and manage Individual Differences	The individual did not demonstrate critical thinking and analytical ability in managing Individual Differences	The individual did not demonstrate critical thinking and analytical ability in managing Individual Differences	The individual somewhat demonstrated critical thinking and analytical ability in managing Individual Differences	The individual mostly demonstrated critical thinking and analytical ability in managing Individual Differences	The individual completely demonstrated critical thinking and analytical ability in managing Individual Differences	
5	Able to Learn and Play in Groups	The individual did not initiate and exhibit the clarity in terms of Group Dynamics	The individual slightly initiated and did exhibit the clarity in terms of better than low Group Dynamics	The individual initiated and did exhibit average on the clarity in terms Group Dynamics	The individual initiated and did exhibit moderately on demonstration of Group Dynamics	The individual effectively initiated and did exhibit average high on demonstration Group Dynamics	
6	Able to apply creative thinking in Various situations of Problem Solving	The individual was not able to apply creative thinking in various Problem solving situation	The individual tried to apply creative thinking in various problem solving situation	The individual could somewhat apply creative thinking in various problem solving situation	The individual could moderately apply creative thinking in various problem solving situation	The individual could completely apply creative thinking in various problem solving situation	
7	Able to demonstrate good character and value based behavior in various situations.	The individual could not demonstrate good character and value based behavior in various situations.	The individual initiated to demonstrate good character and value based behavior in various situations.	The individual could somewhat demonstrate good character and value based behavior in various situations.	The individual could moderately demonstrate good character and value based behavior in various situations.	The individual completely demonstrated good character and value based behavior in various situations.	
	Able to apply positive emotions for creating healthy climate.	The individual could not apply positive emotions for creating healthy climate.	The individual could slightly apply positive emotions for creating healthy climate.	The individual could somewhat apply positive emotions for creating healthy climate.	The individual could moderately apply positive emotions for creating healthy climate.	The individual could completely apply positive emotions for creating healthy climate.	

9	Able to demonstrate the learning of excellence	The individual could not demonstrate the learning of excellence	The individual could slightly demonstrate the learning of excellence	The individual could somewhat demonstrate the learning of excellence	The individual could moderately demonstrate the learning of excellence	The individual could completely demonstrate the learning of excellence	
10	Able to learn and practice their personal success strategies.	The individual scored low in demonstration of practicing their personal success strategies.	The individual slightly scored relatively better than low in demonstration of practicing their personal success strategies.	The individual scored average on demonstration of practicing their personal success strategies.	The individual initiated and scored moderately on demonstration of practicing their personal success strategies.	The individual effectively initiated and scored high on demonstration of practicing their personal success strategies.	
11	Able to apply behavioral communication for effective leadership.	The individual could not apply behavioral communication for effective leadership.	The individual could initiate the application of behavioral communication for effective leadership.	The individual could slightly apply behavioral communication for effective leadership.	The individual could moderately apply behavioral communication for effective leadership.	The individual could fully apply behavioral communication for effective leadership.	
12	Able to demonstrate value based insights to deal effectively in personal and professional life	The individual was not able to demonstrate value based insights to deal effectively in personal and professional life.	The individual could initiate the demonstration of value based insights to deal effectively in personal and professional life.	The individual could slightly demonstrate value based insights to deal effectively in personal and professional life.	The individual could moderately demonstrate value based insights to deal effectively in personal and professional life.	The individual could fully demonstrate value based insights to deal effectively in personal and professional life.	
13	Able to manage their stress in healthy manner	The individual was not able to manage their stress in healthy manner	The individual could initiate the management of stress in a healthy manner.	The individual could slightly manage the stress in healthy manner.	The individual could moderately manage stress in a healthy manner.	The individual could completely manage stress in a healthy manner.	

Total Score	

If the student scores between	Outcome Attainment Levels
<=25	Needs improvement
26-34	Satisfactory
35-43	Partly Achieved
44-52	Fully Achieved

Rubrics for Assessment of Learning outcomesBehavioral Science – UG (4 year B. Tech. Programmes)
Name:_____ Enrolment No.:_____ Programme:_____

Sl. No.	Description of Rubrics	UNSATISFACTORY (0)	NEEDS IMPROVEMENT (1)	SATISFACTORY (2)	PROFICIENT (3)	DISTINGUISHED (4)	Score
1	Able to Understand Self with reference to strength and Weakness	The JOS Does not reflect the conceptual understanding	The JOS slightly reflects the conceptual understanding	The JOS moderately reflects the conceptual understanding	The JOS mostly reflects the conceptual understanding	The JOS completely reflect the conceptual understanding	
2	Able to display and demonstrate Self Confidence	The individual's JOS did not cover relevant information of the application based learning	The individual's JOS slightly covered relevant information of the application based learning	The individual's JOS somewhat covered relevant information of the application based learning	The individual's JOS mostly covered relevant information of the application based learning	The individual's JOS completely covered relevant information of the application based learning	
3	Able to apply the techniques of Impression management	The individual did not demonstrate critical thinking and analytical ability in reference techniques of Impression management	The individual slightly demonstrated critical thinking and analytical ability in reference to techniques of Impression management	The individual somewhat demonstrated critical thinking and analytical ability in reference to techniques of Impression management	The individual mostly demonstrated critical thinking and analytical ability in reference to techniques of Impression management	The individual completely demonstrated critical thinking and analytical ability in reference to techniques of Impression management	
4	Able to recognize and manage Individual Differences	The individual was not able to recognize and manage Individual Differences	The individual was Slightly able to recognize and manage Individual Differences	The individual was somewhat able to recognize and manage Individual Differences	The individual was moderately able to recognize and manage Individual Differences	The individual was completely able to recognize and manage Individual Differences	

5	Able to Learn and Play in Groups	The individual did not initiate and exhibit clarity in terms of Group Dynamics	The individual slightly exhibited clarity in terms of demonstrating Group Dynamics	The individual initiated and exhibited somewhat Group Dynamics	The individual initiated and moderately exhibited Group Dynamics	The individual effectively initiated and completely exhibited Group Dynamics	
6	Able to apply creative thinking in Various situations of Problem Solving	The individual was not able to apply creative thinking in various Problem solving situation	The individual tried to apply creative thinking in various problem solving situation	The individual could somewhat apply creative thinking in various problem solving situation	The individual could moderately apply creative thinking in various problem solving situation	The individual could completely apply creative thinking in various problem solving situation	
7	Able to demonstrate good character and value based behavior in various situations.	The individual could not demonstrate good character and value based behavior in various situations.	The individual initiated to demonstrate good character and value based behavior in various situations.	The individual could somewhat demonstrate good character and value based behavior in various situations.	The individual could moderately demonstrate good character and value based behavior in various situations.	The individual completely demonstrated good character and value based behavior in various situations.	
	Able to apply positive emotions for creating healthy climate.	The individual could not apply positive emotions for creating healthy climate.	The individual could slightly apply positive emotions for creating healthy climate.	The individual could somewhat apply positive emotions for creating healthy climate.	The individual could moderately apply positive emotions for creating healthy climate.	The individual could completely apply positive emotions for creating healthy climate.	
9	Able to demonstrate the learning of excellence	The individual could not demonstrate the learning of excellence	The individual could slightly demonstrate the learning of excellence	The individual could somewhat demonstrate the learning of excellence	The individual could moderately demonstrate the learning of excellence	The individual could completely demonstrate the learning of excellence	

10	Able to learn and practice their personal success strategies.	The individual scored low in demonstration of practicing their personal success strategies.	The individual slightly scored relatively better than low in demonstration of practicing their personal success strategies.	The individual scored average on demonstration of practicing their personal success strategies.	The individual initiated and scored moderately on demonstration of practicing their personal success strategies.	The individual effectively initiated and scored high on demonstration of practicing their personal success strategies.	
11	Able to apply behavioral communication for effective leadership.	The individual could not apply behavioral communication for effective leadership.	The individual could initiate the application of behavioral communication for effective leadership.	The individual could somewhat apply behavioral communication for effective leadership.	The individual could moderately apply behavioral communication for effective leadership.	The individual could fully apply behavioral communication for effective leadership.	
12	Able to demonstrate value based insights to deal effectively in personal and professional life	The individual was not able to demonstrate value based insights to deal effectively in personal and professional life.	The individual could initiate the demonstration of value based insights to deal effectively in personal and professional life.	The individual could somewhat demonstrate value based insights to deal effectively in personal and professional life.	The individual could moderately demonstrate value based insights to deal effectively in personal and professional life.	The individual could fully demonstrate value based insights to deal effectively in personal and professional life.	
13	Able to manage their stress in healthy manner.	The individual was not able to manage their stress in healthy manner.	The individual could slightly initiate the management of stress in a healthy manner.	The individual could somewhat manage the stress in healthy manner.	The individual could moderately manage stress in a healthy manner.	The individual could completely manage stress in a healthy manner.	
14	Able to coordinate and Empower Team	The individual was not able to coordinate and Empower Team	The individual was able to initiate the coordination and Empower Team	The individual was able to somewhat coordinate and Empower Team	The individual was able to moderately coordinate and Empower Team	The individual was completely able to coordinate and Empower Team	
						Total Score	

If the student scores between	Outcome Attainment Levels
<28	Needs improvement
28-37	Satisfactory
38-46	Partly Achieved
47-56	Fully Achieved

RUBRICS FOR ASSESMENT OF FOREIGN BUSINESS LANGUAGE FOR _____ PROGRAMME

Assessment Parameters:

4. Language
5. Culture
6. Vocabulary

SCORING:

- If the student's performance is **unsatisfactory** on a criteria then he scores 0
- If the student's performance is **needs improvement** on a criteria then he scores 1
- If the student's performance is **satisfactory** on a criteria then he scores 2
- If the student's performance is **proficient** on a criteria then he scores 3
- If the student's performance is **distinguished** on a criteria then he scores 4

TOOLS USED FOR ASSESSMENT:

- Role play
- Exercises in class
- Class performance
- Assignments

COMPOSITION OF ASSESSMENT BOARD

- Foreign Business Language Faculty
- Program coordinator
- Senior Core Course Faculty

Rubrics for Foreign Business Languages – 2 Years PG Programmes

	Attributes	Unsatisfactory (0)	Needs improvement (1)	Satisfactory (2)	Proficient (3)	Distinguished (4)
1	Introduction to language & Culture Greetings & Basic Vocabulary	Student does not understand the concepts.	Sometimes takes initiative & asks questions.	Is able to comprehend and utilize appropriate study material.	Student eagerly participates in class. Asks questions and speaks spontaneously.	Student shows great interest in class activities & instantly responds with the right answer.
2	Description of people and locations	Uses limited vocabulary and mispronunciations impede comprehensibility.	Relies on basic vocabulary. Speech is comprehensible in spite of mispronunciation.	Utilizes old and new vocabulary. Attempts to use idiomatic expressions according to the topic.	Speaks clearly and uses idiomatic expressions fluently as per the topic.	Uses variety of vocabulary as per the context. Has good command over expressions.
3	Regular &	Makes sentences	Makes errors	Makes a few	Uses correct word	Makes error

	Irregular verbs	which are so brief that there is little evidence of structure & comprehension.	which may interfere with comprehensibility.	errors which do not affect the overall comprehension.	order and article adjectives. Errors do not hinder comprehensibility.	free sentences using correct sentence formations.
4	Describing self, Possessions & places	Uses very few approaches to initiate a conversation.	Uses some strategies and needs frequent prompting to further the conversation.	Uses some strategies yet requires occasional prompting.	Clarifies and continues conversation using good strategies like intonation, self-correction, and verbal cues.	Is able to speak on any given topic using expressions. Is also able to comprehend other person clearly.
5	Likes & Dislikes	Rarely uses/interprets cultural manifestations.	Sometimes uses/interprets cultural manifestations when appropriate to the task.	Frequently uses/interprets cultural manifestations when appropriate to the task.	Almost always uses /interprets cultural manifestations when appropriate to the task.	Has in-depth knowledge about other countries culture & other perspectives.
6	On-going actions & plans	Student does not understand the concepts.	Sometimes takes initiative & asks questions.	Is able to comprehend and utilize appropriate study material.	Student eagerly participates in class. Asks questions and speaks spontaneously.	Student shows great interest in class activities & instantly responds with the right answer.
7	Recent past situations	Makes sentences which are so brief that there is little evidence of structure & comprehension.	Makes errors which may interfere with comprehensibility.	Makes a few errors which do not affect the overall comprehension.	Uses correct word order and article adjectives. Errors do not hinder comprehensibility.	Makes error free sentences using correct sentence formations.
8	Expressing emotions, dialogues used at public places	Student does not understand the concepts.	Sometimes takes initiative & asks questions.	Is able to comprehend and utilize appropriate study material.	Student eagerly participates in class. Asks questions and speaks spontaneously.	Student shows great interest in class activities & instantly responds with the right answer.

If the student scores between	Outcome Attainment Levels
50%	Needs improvement
51%-60%	Satisfactory
61%-70%	Partly Achieved
71%-100%	Fully Achieved

RUBRICS FOR ASSESMENT OF FOREIGN BUSINESS LANGUAGE FOR _____ PROGRAMME

Assessment Parameters:

1. Language
2. Culture
3. Vocabulary

SCORING:

- If the student's performance is **unsatisfactory** on a criteria then he scores 0
- If the student's performance is **needs improvement** on a criteria then he scores 1
- If the student's performance is **satisfactory** on a criteria then he scores 2
- If the student's performance is **proficient** on a criteria then he scores 3
- If the student's performance is **distinguished** on a criteria then he scores 4

TOOLS USED FOR ASSESSMENT:

- Role play
- Exercises in class
- Class performance
- Assignments

COMPOSITION OF ASSESSMENT BOARD

- Foreign Business Language Faculty
- Program coordinator
- Senior Core Course Faculty

Rubrics for Foreign Business Languages – 3 Years UG Programmes

	Attributes	**Unsatisfactory (0)**	**Needs improvement (1)**	**Satisfactory (2)**	**Proficient (3)**	**Distinguished (4)**
1	Introduction to language & Culture Greetings & Basic Vocabulary	Student does not understand the concepts.	Sometimes takes initiative & asks questions.	Is able to comprehend and utilize appropriate study material.	Student eagerly participates in class. Asks questions and speaks spontaneously.	Student shows great interest in class activities & instantly responds with the right answer.
2	Description of people and locations	Uses limited vocabulary and mispronunciations impede comprehensibility.	Relies on basic vocabulary. Speech is comprehensible in spite of mispronunciation.	Utilizes old and new vocabulary. Attempts to use idiomatic expressions according to the topic.	Speaks clearly and uses idiomatic expressions fluently as per the topic.	Uses variety of vocabulary as per the context. Has good command over expressions.
3	Regular & Irregular verbs	Makes sentences which are so brief that there is little evidence of structure & comprehension.	Makes errors which may interfere with comprehensibility.	Makes a few errors which do not affect the overall comprehension.	Uses correct word order and article adjectives. Errors do not hinder comprehensibility.	Makes error free sentences using correct sentence formations.
4	Describing self, Possessions	Uses very few approaches to initiate a	Uses some strategies and needs frequent	Uses some strategies yet requires	Clarifies and continues conversation	Is able to speak on any given topic

	& places	conversation.	prompting to further the conversation.	occasional prompting.	using good strategies like intonation, self-correction, and verbal cues.	using expressions. Is also able to comprehend other person clearly.
5	Likes & Dislikes	Rarely uses/interprets cultural manifestations.	Sometimes uses/interprets cultural manifestations when appropriate to the task.	Frequently uses/interprets cultural manifestations when appropriate to the task.	Almost always uses /interprets cultural manifestations when appropriate to the task.	Has in-depth knowledge about other countries culture & other perspectives.
6	On-going actions & plans	Student does not understand the concepts.	Sometimes takes initiative & asks questions.	Is able to comprehend and utilize appropriate study material.	Student eagerly participates in class. Asks questions and speaks spontaneously.	Student shows great interest in class activities & instantly responds with the right answer.
7	Recent past situations	Makes sentences which are so brief that there is little evidence of structure & comprehension.	Makes errors which may interfere with comprehensibility.	Makes a few errors which do not affect the overall comprehension.	Uses correct word order and article adjectives. Errors do not hinder comprehensibility.	Makes error free sentences using correct sentence formations.
8	Expressing emotions, dialogues used at public places	Student does not understand the concepts.	Sometimes takes initiative & asks questions.	Is able to comprehend and utilize appropriate study material.	Student eagerly participates in class. Asks questions and speaks spontaneously.	Student shows great interest in class activities & instantly responds with the right answer.
9	Conversation in future tense	Makes sentences which are so brief that there is little evidence of structure & comprehension.	Makes errors which may interfere with comprehensibility.	Makes a few errors which do not affect the overall comprehension.	Uses correct word order and article adjectives. Errors do not hinder comprehensibility.	Makes error free sentences using correct sentence formations.
10	Informal letters & emails	Student does not understand the concepts.	Sometimes takes initiative & asks questions.	Is able to comprehend and utilize appropriate study material.	Student eagerly participates in class. Asks questions and speaks spontaneously.	Student shows great interest in class activities & instantly responds with the right answer.
11	Orders and Instructions	Makes sentences which are so brief that there is little evidence of structure & comprehension.	Makes errors which may interfere with comprehensibility.	Makes a few errors which do not affect the overall comprehension.	Uses correct word order and article adjectives. Errors do not hinder comprehensibility.	Makes error free sentences using correct sentence formations.
12	Request and	Student does not understand the	Sometimes takes initiative & asks	Is able to comprehend	Student eagerly participates in	Student shows great interest

	Enquiry	concepts.	questions.	and utilize appropriate study material.	class. Asks questions and speaks spontaneously.	in class activities & instantly responds with the right answer.

If the student scores between	Outcome Attainment Levels
50%	Needs improvement
51%-60%	Satisfactory
61%-70%	Partly Achieved
71%-100%	Fully Achieved

RUBRICS FOR ASSESMENT OF FOREIGN BUSINESS LANGUAGE FOR _____ PROGRAMME

Assessment Parameters:

1. Language
2. Culture
3. Vocabulary

SCORING:

- If the student's performance is **unsatisfactory** on a criteria then he scores 0
- If the student's performance is **needs improvement** on a criteria then he scores 1
- If the student's performance is **satisfactory** on a criteria then he scores 2
- If the student's performance is **proficient** on a criteria then he scores 3
- If the student's performance is **distinguished** on a criteria then he scores 4

TOOLS USED FOR ASSESSMENT:

- Role play
- Exercises in class
- Class performance
- Assignments

COMPOSITION OF ASSESSMENT BOARD

- Foreign Business Language Faculty
- Program coordinator
- Senior Core Course Faculty

Rubrics for Foreign Business Languages – 4 Years UG Programmes

	Attributes	**Unsatisfactory (0)**	**Needs improvement (1)**	**Satisfactory (2)**	**Proficient (3)**	**Distinguished (4)**
1	Introduction to language & Culture Greetings & Basic Vocabulary	Student does not understand the concepts.	Sometimes takes initiative & asks questions.	Is able to comprehend and utilize appropriate study material.	Student eagerly participates in class. Asks questions and speaks spontaneously.	Student shows great interest in class activities & instantly responds with the right answer.

2	Description of people and locations	Uses limited vocabulary and mispronunciations impede comprehensibility.	Relies on basic vocabulary. Speech is comprehensible in spite of mispronunciation.	Utilizes old and new vocabulary. Attempts to use idiomatic expressions according to the topic.	Speaks clearly and uses idiomatic expressions fluently as per the topic.	Uses variety of vocabulary as per the context. Has good command over expressions.
3	Regular & Irregular verbs	Makes sentences which are so brief that there is little evidence of structure & comprehension.	Makes errors which may interfere with comprehensibility.	Makes a few errors which do not affect the overall comprehension.	Uses correct word order and article adjectives. Errors do not hinder comprehensibility.	Makes error free sentences using correct sentence formations.
4	Describing self, Possessions & places	Uses very few approaches to initiate a conversation.	Uses some strategies and needs frequent prompting to further the conversation.	Uses some strategies yet requires occasional prompting.	Clarifies and continues conversation using good strategies like intonation, self-correction, and verbal cues.	Is able to speak on any given topic using expressions. Is also able to comprehend other person clearly.
5	Likes & Dislikes	Rarely uses/interprets cultural manifestations.	Sometimes uses/interprets cultural manifestations when appropriate to the task.	Frequently uses/interprets cultural manifestations when appropriate to the task.	Almost always uses /interprets cultural manifestations when appropriate to the task.	Has in-depth knowledge about other countries culture & other perspectives.
6	On-going actions & plans	Student does not understand the concepts.	Sometimes takes initiative & asks questions.	Is able to comprehend and utilize appropriate study material.	Student eagerly participates in class. Asks questions and speaks spontaneously.	Student shows great interest in class activities & instantly responds with the right answer.
7	Recent past situations	Makes sentences which are so brief that there is little evidence of structure & comprehension.	Makes errors which may interfere with comprehensibility.	Makes a few errors which do not affect the overall comprehension.	Uses correct word order and article adjectives. Errors do not hinder comprehensibility.	Makes error free sentences using correct sentence formations.
8	Expressing emotions, dialogues used at public places	Student does not understand the concepts.	Sometimes takes initiative & asks questions.	Is able to comprehend and utilize appropriate study material.	Student eagerly participates in class. Asks questions and speaks spontaneously.	Student shows great interest in class activities & instantly responds with the right answer.
9	Conversation in future tense	Makes sentences which are so brief that there is little evidence of structure &	Makes errors which may interfere with comprehensibility.	Makes a few errors which do not affect the overall comprehension.	Uses correct word order and article adjectives. Errors do not hinder comprehensibility.	Makes error free sentences using correct sentence formations.

		comprehension.				
10	Informal letters & emails	Student does not understand the concepts.	Sometimes takes initiative & asks questions.	Is able to comprehend and utilize appropriate study material.	Student eagerly participates in class. Asks questions and speaks spontaneously.	Student shows great interest in class activities & instantly responds with the right answer.
11	Orders and Instructions	Makes sentences which are so brief that there is little evidence of structure & comprehension.	Makes errors which may interfere with comprehensibility.	Makes a few errors which do not affect the overall comprehension.	Uses correct word order and article adjectives. Errors do not hinder comprehensibility.	Makes error free sentences using correct sentence formations.
12	Request and Enquiry	Student does not understand the concepts.	Sometimes takes initiative & asks questions.	Is able to comprehend and utilize appropriate study material.	Student eagerly participates in class. Asks questions and speaks spontaneously.	Student shows great interest in class activities & instantly responds with the right answer.
13	Telephonic Conversations	Makes sentences which are so brief that there is little evidence of structure & comprehension.	Makes errors which may interfere with comprehensibility.	Makes a few errors which do not affect the overall comprehension.	Uses correct word order and article adjectives. Errors do not hinder comprehensibility.	Makes error free sentences using correct sentence formations.
14	Conversation & describing past events.	Student does not understand the concepts.	Sometimes takes initiative & asks questions.	Is able to comprehend and utilize appropriate study material.	Student eagerly participates in class. Asks questions and speaks spontaneously.	Student shows great interest in class activities & instantly responds with the right answer.
15	Interview skills	Makes sentences which are so brief that there is little evidence of structure & comprehension.	Makes errors which may interfere with comprehensibility.	Makes a few errors which do not affect the overall comprehension.	Uses correct word order and article adjectives. Errors do not hinder comprehensibility.	Makes error free sentences using correct sentence formations.
16	Story reading and comprehension	Student does not understand the concepts.	Sometimes takes initiative & asks questions.	Is able to comprehend and utilize appropriate study material.	Student eagerly participates in class. Asks questions and speaks spontaneously.	Student shows great interest in class activities & instantly responds with the right answer.

If the student scores between	Outcome Attainment Levels
50%	Needs improvement
51%-60%	Satisfactory
61%-70%	Partly Achieved

71%-100%	Fully Achieved

STUDENT EXIT SURVEY

Student Exit Survey

Programme: B. Tech Biotechnology **Batch _____**

Dear Student, the objective of this Survey is to seek your candid assessment regarding the various learning aspects of the programme. The information from this survey will be analysed and used to identify the areas of improvement.

Sl. No.	Statements	Strongly agree	Agree	Neither agree nor disagree	Somewhat Agree	Not at all agree
PLO 1 : Knowledge and skills in Biotechnology						
1	I have developed clear understanding about Biotechnology					
2	I have acquired basic skills in biotechnology.					
3	I am able to apply academic learning to practical issues.					
4	I am able to use the acquired skills in various areas of biotechnology.					
PLO 2: Problem solving						
1	I am able to identify the problem in specific area of biotechnology.					
2	I have the ability to practically solve the problem in biotechnology					
3	I have ability to understand research problems					
4	I am able to analyse data/information and interpret results for driving optimum solutions.					
PLO 3 : Concepts in biotechnological techniques						
1	I have learned and acquired the basic concepts and learning of biotechnological skills					
2	I am able to analyse and apply the concepts in biotechnological techniques to come to conclusion					
3	I am able to implement the skills learned in research and development					
4	I have acquired the clear concepts in various techniques of biotechnology					
PLO 4 : Communication Skills						
1	I can communicate clearly and effectively with my team members.					
2	I can deliver effective presentations					
3	I have ability to speak proficiently.					
4	I have ability to write effectively and clearly.					
PLO 5:Interpersonal skills						
1	I am able to collect and design relevant information.					
2	I have acquired adequate skills to present the information to my coworkers in effective manner.					
3	I am able to organise information and disseminate it effectively					
4	I have learned to present the information to R&D companies.					
PLO 6: Behavioural skills						
1	I have acquired sufficient behavioural skills like convincing and analytical thinking.					

2	I have learned behavioural skills like answering a complaint etc.					
3	I am able to apply the various behavioural skills to be successful at workplace					
4	I am able to lead my professional life efficiently with these behavioural skills					
PLO 7 : Self-management and teamwork						
1	I am reliable.					
2	I am dependable.					
3	I am able to communicate effectively in interdisciplinary teams.					
4	I am able to work effectively in interdisciplinary teams.					
PLO 8 : Recognition of novel ideas in Biotechnology						
1	I am able to recognise novel ideas in biotechnology					
2	I am capable of applying knowledge and skills in biotechnology.					
3	I am able to understand it from different perspectives.					
4	I am capable to develop the novel idea for the betterment of the society.					
PLO 9 : Bio-Ethical Practice and Social Responsibility						
1	I understand the highest standards of ethical behaviour.					
2	I am ethically responsible towards colleagues and research subjects.					
3	I practice the highest standards of ethical behaviour associated with my profession.					
4	I have bio-ethical responsiblity towards the wider community, and the environment.					
PLO 10 : Employability skills						
1	I have employability skills in biotechnology					
2	I have advanced learning in developing business and employment skills					
3	I possess entrepreneur skill					
4	I possess intellectual business skills					
PLO 11: **Environmental sensitivity**						
1	I am sensitive towards the environment.					
2	I strive to develop environmentally sustainable technologies					
3	I understand the need to preserve and conserve the environment.					
4	I have skills to understand the pros and cons of biotechnological advancement on environment and surroundings.					
PLO 12: Lifelong Learning						
1	I am a curious learner.					
2	I have the ability to acquire knowledge.					
3	I can apply the learned skills to set my profession					
4	I have the ability to acquire information on my own via various sources.					
Experience at AMITY						
1	I am overall satisfied with the methodologies and pedagogical tools used by my faculty.					
2	I find the curriculum contemporary and relevant to the industry.					
3	I got ample opportunities for Industry Interaction.					
4	I am satisfied with the Internship facility provided to me.					

5	I am satisfied with the University Infrastructure.					
6	I am overall satisfied with the Faculties who taught me.					
7	I am overall satisfied with the Programme.					

Thank you for taking the time to complete this survey.

Student Exit Survey

Programme - B Sc. (Honours) Biotechnology **Batch _____**

Dear Student, the objective of this Survey is to seek your candid assessment regarding the various learning aspects of the programme. The information from this survey will be analysed and used to identify the areas of improvement.

Sl. No.	Statements	Strongly agree	Agree	Neither agree nor disagree	Somewhat Agree	Not at all agree
PLO 1 : Ethical issues associated with Biotechnology research						
1	I understand the ethical issues related to research and knowledge in biotechnology.					
2	I strive for honesty and responsibility towards the environment and the knowledge we gain so as to put it to best use.					
3	I am ethical responsible towards colleagues, research subjects, the wider community, and the environment;					
4	I strive for justice, equality, honesty, and integrity in all my personal and professional pursuits					
PLO 2: Team work Leadership and Behavioural Skills						
1	I have developed in the program to be reliable and dependable.					
2	I am Respectful & Empathetic towards others views irrespective of caste, race, class, gender, religion etc.					
3	I have learnt skills to complete assignments and projects on time.					
4	I am confident and have learnt how to adapt to change					
PLO 3 : Learning attitude						
1	I have intellectual curiosity towards learning the various processes of life sciences.					
2	I am competent to use a range of learning strategies and acquire knowledge on my own through various sources.					
3	I feel I am a self-directed learner who continues to learn and grow.					
4	I use my prior learning to approach a new					

	problem.					
PLO 4 : Environment sensitivity						
1	I understand the need for conservation of environment					
2	I recognize the relationship between Environmental, Social and economic sustainability and my role towards it.					
3	I apply my knowledge in a diverse range of contexts pertaining to Environmental, Social and economic sustainability.					
4	I strive to develop environmentally sustainable technologies					
PLO 5 : Biotechnology applications						
1	I am competent of identifying the highly specialized concepts in theoretical and applied aspects of Biotechnology.					
2	I have developed the attitude of review and critically appraise the practical aspects of biotechnology.					
3	I try to relate academic learning to practical issues.					
4	I have ability to develop creative, innovative and practical solution.					
PLO 6 : Knowledge of Biosciences and Biotechnology						
1	I have developed the basic understanding towards fundamental and relevant questions in lifescience					
2	I am able to understand modern biotechnology in a synergistic framework.					
3	I am able to apply concepts of Biosciences and Biotechnology in multi-disciplinary context.					
4	I have developed curiosity to learn new things and grow in terms of knowledge.					
PLO 7 : Critical and analytical skills and problem solving						
1	I am able to describe and critically analyse problems in Biosciences & Biotechnology in a research or industrial environment.					
2	I try to relate academic learning to practical issues.					
3	I have ability to develop creative, innovative and practical solution and to prioritize my work.					
4	I have ability to implement and test solutions.					
PLO 8 : Good lab practices						
1	I am well equipped with most of the practical skills related to basic biotechnology.					
2	I have developed and an awareness of good lab practice in biotechnology					
3	I am aware of the safety issues related to environment and health .					
4	I am able to apply practical techniques in a way so as to ensure health and safety.					
PLO 9: Biological Data analysis and interpretation						
1	I am able to critical analyse					

	data/information					
2	I am able to interpret results for driving optimum solutions.					
3	I am able to use various tools and technologies for data processing and analysis.					
4	I am able to review and systematically interpret information					
PLO 10: Oral and written Communication Skills						
1	I have ability to effectively communicate and impart knowledge which I have acquired on the topics of biosciences and biotechnology					
2	I am competent to analyse and convey information in writing.					
3	I can Communicate clearly and effectively pertaining to the topics of life sciences.					
4	I am good making presentation in global /cross cultural environment.					
PLO 11: Interpersonal skills						
1	I have grown to be self-managed.					
2	I am quite responsible and accountable.					
3	I am a socially aware person with skills of problem solving					
4	I am able to effectively communicate in a group as well as individual basis.					
PLO 12: Practical Skills in Biotechnology						
1	I am competent of using all the basic tools and techniques in basic biotechnology.					
2	I am aware of resources and tools to be used in understanding the basics of biotechnology research.					
3	I am capable of the efficient use of resources and tools.					
4	I am aware of good lab practices to ensure health and safety.					
Experience at AMITY						
1	I am overall satisfied with the methodologies and pedagogical tools used by my faculty.					
2	I find the curriculum contemporary and relevant to the industry.					
3	I got ample opportunities for Industry Interaction.					
4	I am satisfied with the Internship facility provided to me.					
5	I am satisfied with the University Infrastructure.					
6	I am overall satisfied with the Faculties who taught me.					
7	I am overall satisfied with the Programme.					

Thank you for taking the time to complete this survey.

Student Exit Survey

Programme - B. Tech. Bioinformatics **Batch _____**

Dear Student, the objective of this Survey is to seek your candid assessment regarding the various learning aspects of the programme. The information from this survey will be analysed and used to identify the areas of improvement.

Sl. No.	Statements	Strongly agree	Agree	Neither agree nor disagree	Somewhat Agree	at all ree
PLO 1 : Knowledge of Bioinformatics and Computational Biotechnology						
1	I am able to define, summarize concepts in Bioinformatics & Computational Biotechnology					
2	I am able to apply concepts of Bioinformatics & Computational Biotechnology in multi-disciplinary context.					
3	I am able to understand Bioinformatics & Computational Biotechnology in a synergistic framework.					
4	I have developed curiosity to learn new things and grow in terms of knowledge.					
PLO 2: Problem solving						
1	I am able to describe and analyse problems in Bioinformatics & Computational Biotechnology in a research or industrial environment.					
2	I try to relate academic learning to practical issues.					
3	I have ability to develop innovative and practical solution.					
4	I have ability to implement and test solutions.					
PLO 3 : Computational Algorithm development						
1	I have ability to formulate multidisciplinary research and interface between modern biology & informatics.					
2	I am able to review and systematically develop computational algorithm and databases.					
3	I am aware of resources and tools to be used to develop computational algorithm and databases.					

4	I am capable of the efficient use of resources and tools.					
PLO4:	**Scientific Reading & Learning**					
1	I have quest for scientific reading which promotes knowledge					
2	I have developed learning attitude to gain knowledge from the fields of computer science, biology, and mathematics that are critical for students considering bioinformatics research.					
3	I have developed programming knowledge and general computer skills which are essential for success in bioinformatics research projects.					
4	I have the ability to use the knowledge efficiently in bioinformatics research projects.					
PLO 5 : Communication Skills						
1	I have ability to speak proficiently.					
2	I am competent to convey information in writing.					
3	I can communicate clearly and effectively.					
4	I think, I am quite a good listener in professional business setting.					
5	I am good making presentation in global /cross cultural environment.					
PLO 6 : Team work Leadership and Behavioural Skills						
1	I am reliable and dependable.					
2	I am Respectful & Empathetic towards others views irrespective of caste, race, class, gender, religion etc.					
3	I am a collaborative team worker.					
4	I can stay calm in crisis situations and motivate my team.					
5	I am confident to initiate and lead my peer group in any situation.					
PLO7:	**Theoretical & Practical Learning**					
1	I can easily apply my concepts of theoretical bioinformatics knowledge in practical					

	contexts.					
2	I have better understanding towards working on biological workbench for better data analysis and information processing.					
3	I am able to use various tools and technologies for data processing and analysis.					
4	I am able to critically analyze data/information interpret results for driving optimum solutions.					
PLO8:	**Ethical and Professional Conduct**					
1	I understand and practice the highest standards of ethical behaviour associated with management profession.					
2	I am ethical responsible towards colleagues, research subjects, the wider community, and the environment;					
3	I strive for justice, equality, honesty, and integrity in all my personal and professional pursuits.					
4	I understand the ethical issues related to research and knowledge in bioinformatics.					
PLO9:	**Employability Entrepreneurship Skill**					
1	I have basic business acumen & business skills to be employable.					
2	I can create visibility for myself to draw attention of a recruiter.					
3	I possess entrepreneur skill; I am a risk taker.					
4	I always find opportunities to improve the business value chain.					
PLO10:	**Analytical skills**					
1	I am able to analyse biological data/information and interpret results for driving optimum solutions.					
2	I have developed analytical skills which are beneficial beyond the scoop of books					

	through the didactic phase of the program.					
3	I try to relate academic learning to practical issues.					
4	I have ability to develop creative, innovative and practical solution and to implement and test solutions					
PLO 11: **Environment sensitivity**						
1	I understand the need for conservation of environment					
2	I strive to develop environmentally sustainable technologies					
3	I recognize the relationship between Environmental, Social and economic sustainability and my role towards it.					
4	I apply my knowledge in a diverse range of contexts pertaining to Environmental, Social and economic sustainability.					
PLO 12: Lifelong Learning						
1	I have curiosity to learn new things.					
2	I am competent to acquire knowledge on my own through various sources.					
3	I feel I am a self-directed learner.					
4	Translate the scientific finding for the benefit of the society.					
Experience at AMITY						
1	I am overall satisfied with the methodologies and pedagogical tools used by my faculty.					
2	I find the curriculum contemporary and relevant to the industry.					
3	I got ample opportunities for Industry Interaction.					
4	I am satisfied with the Internship facility provided to me.					
5	I am satisfied with the University Infrastructure.					
6	I am overall satisfied with the Faculties who taught me.					
7	I am overall satisfied with the Programme.					

Thank you for taking the time to complete this survey.

Student Exit Survey

Programme Group : B. Sc. (Hons) Medical Biotechnology

Dear Student, the objective of this Survey is to seek your candid assessment regarding the various learning aspects of the B.Sc (Hons) Medical Biotechnology programme. The information from this survey will be analysed and used to identify the areas of improvement.

Sl. No.	Statements	Strongly agree	Agree	Neither agree nor disagree	Somewhat Agree	Not at all agree
PLO 1 : Knowledge of Medical Biotechnology						
1	I can summarize the basic understanding towards fundamental and relevant questions in lifescience and medical biotechnology in a synergistic framework.					
2	I am able to explain and analyse the concept of medical biotechnology in context to healthcare.					
3	I can translate academic learning to practical issues.					
4	I am able to apply the acquired skills in various areas of biotechnology.					
PLO 2: Analytical skills						
1	I am able to describe and outline the problems in Biosciences and medical biotechnology in a research environment.					
2	I can translate academic learning to practical issues and I am able to identify problems and prepare small projects for the analysis of the same.					
3	I am able to reach sustained conclusions of the problems related to medical biotechnology using logical principles.					
4	I am able to translate data/information and interpret results for driving optimum solutions.					
PLO3 : Problem Solving						
1	I have developed skills to solve the problems in medical biotechnology					
2	I am able to list the skills to plan a diverse range of medical biotechnology divisions.					
3	I am able to describe practical solutions within medical biotechnology area.					
4	I can apply various decision making methods to scientifically solve any medical biotechnology problem.					
PLO 4 : Data analysis and interpretation						
1	I am able to use knowledge and scientifically proven methodologies to demonstrate basic					

	medical biotechnology experiments					
2	I am able to produce data to provide meaningful definitive conclusions.					
3	I am able to solve research problem in medical biotechnology					
4	I am able to produce results to basic problems in medical biotechnology area					
PLO 5 : Individual and team work						
1	I am reliable and dependable.					
2	I am confident to initiate and lead my peer group in any situation.					
3	I have developed in the program to be reliable and dependable.					
4	I can complete assignments and projects on time.					
PLO 6 : Communication Skills						
1	I have ability to effectively communicate and impart knowledge which I have acquired on the topics of basic medical biotechnology					
2	I can communicate clearly and effectively pertaining to the topics of life sciences.					
3	I have ability to speak proficiently					
4	I have ability to write clearly.					
PLO 7 : Ethical and Professional Conduct						
1	I am able to demonstrate the defined limits of bioethical principles					
2	I am able to apply principles in the Biomedical research and academia.					
3	I am ethically responsible towards colleagues and research subjects.					
4	I have ethical responsibility towards the wider community, and the environment.					
PLO 8 : Modern Tool Usage						
1	I can apply all the basic tools and techniques in basic medical biotechnology.					
2	I can identify resources and tools to be used in understanding the basics of biotechnology research and capable to their efficient use.					
3	I can demonstrate the use of tools with the respective techniques.					
4	I can prepare standard operating procedure for the basic tools used in basic medical biotechnology.					
PLO 9 : Life Long learning						
1	I can demonstrate lifelong learning in the field of health and allied sciences.					
2	I am able to name and recognize skills as per requirements in the field of medical biotechnology					
3	I am curious to learn new things.					
4	I am competent to acquire knowledge on my own through various sources.					
PLO 10: Practical Applications						
1	I am able to apply learning of human biological system in various practical contexts.					
2	I am able to apply skills in medical biotechnology various multidisciplinary					

	problems.					
3	I can demonstrate academic learning to practical issues.					
4	I am able to demonstrate the skills learned in research and development					
PLO11: Environment and Sustainability						
1	I am able to recognize the significance of societal and environmental contexts					
2	I am able to define and emphasize special stress in gaining sustainable development.					
3	I can demonstrate the need to preserve and conserve the environment.					
4	I have skills to distinguish the pros and cons of biotechnological advancement on environment and surroundings.					
PLO12:Medical Biotechnology and Society						
1	I am able to analyse and investigate professional, ethical and societal.					
2	I am able analyse and investigate environmental and economic responsibility with respect to medical biotechnology.					
3	I am able to demonstrate responsibility for the implementation of targeted investigations in professional practices.					
4	I am able to show relation between medical biotechnology to societal issues.					
Experience at AMITY						
1	I am overall satisfied with the methodologies and pedagogical tools used by my faculty.					
2	I find the curriculum contemporary and relevant to the industry.					
3	I got ample opportunities for Industry Interaction.					
4	I am satisfied with the Internship facility provided to me.					
5	I am satisfied with the University Infrastructure.					
6	I am overall satisfied with the Faculties who taught me.					
7	I am overall satisfied with the Programme.					

Thank you for taking the time to complete this survey.

Student Exit Survey

Programme - M. Sc. Biotechnology **Batch _____**

Dear Student, the objective of this Survey is to seek your candid assessment regarding the various learning aspects of the programme. The information from this survey will be analysed and used to identify the areas of improvement.

Sl. No.	Statements	Strongly agree	Agree	Neither agree nor disagree	Some what Agree	Not at all agree
PLO 1 : Knowledge of Biotechnology						
1	I am able to recall factual information on broad knowledge based proficiency in central themes, principles and components of bioscience					
2	I am able to apply concepts of Biosciences and Biotechnology in multi-disciplinary context					
3	I am able to analyse implications of biotechnology in societal, environmental and educational frameworks.					
4	I can apply theoretical knowledge into practice.					
PLO 2 : Biotechnology skills						
1	I am updated with the tools and techniques in biotechnology					
2	I am competent of identifying the highly specialized concepts in theoretical and applied aspects of Biotechnology.					
3	I have developed the attitude of review and critically appraise the practical aspects of biotechnology.					
4	I am able utilize the skills for disseminating information.					
5	I have ability to develop creative, innovative and practical solution					
PLO 3 : Problem solving						
1	I am able to describe and critically analyse problems in Bioscienes & Biotechnology in a research or industrial environment with scientific literacy.					
2	I am able to demonstrate					

	knowledge of biological processes from the molecular and cellular perspectives.					
3	I am to employ the appropriate techniques effectively and safely, including the appropriate use of equipment and tools to produce an acceptable outcome when performing a technical laboratory task.					
4	I have ability to develop creative, innovative and practical solution and to prioritize my work.					
PLO 4 : Research acumen						
1	I have ability to plan, conduct, evaluate and report the results of investigations, including the use of secondary data in this process					
2	I have ability to formulate research questions and set research goals.					
3	I am able to critically analyze data/information and to interpret results for driving optimum solutions.					
4	I am able to review and design a scientific research proposal and set its respective research goals					
PLO 5 : **Critical Thinking Skills**						
1	I am able to engage in the scientific process to form hypotheses,					
2	I am able to synthesize scientific information, gather and analyze data.					
3	I am capable of applying statistical techniques and draw conclusions.					
4	I am able to use protocols to devise data collection procedures and analyze results.					
PLO 6 : Interpersonal Skills						
1	I have ability to present my scientific data confidently.					
2	I am competent to interact professionally in cross-cultural teams.					
3	I can communicate with my co-workers clearly and effectively.					
4	I am a socially aware person with skills of problem solving					

PLO 7 : Communication skills						
1	I am able to use the terminology, concepts and examples of biotechnology in presentations					
2	I am able to write scientific information and data using facts and knowledge of biotechnology					
3	I am able to formulate and evaluate scientific research pertaining to biotechnology in related fields.					
4	I am good making presentation in global /cross cultural environment.					
PLO 8 : Team work and Leadership skills						
1	I am able to work in scientific team and also take leadership roles.					
2	I am able to engage in effective scientific communication as individuals and as team members by listening, speaking, writing and presenting in oral and poster format					
3	I can stay calm and is confident to initiate in a crisis situations and motivate/ lead my team.					
4	I have learnt skills to complete assignments and projects on time.					
PLO 9 : Global Outlook						
1	I am able to correlate global issues with scientific information from different perspectives.					
2	I find myself capable of applying my knowledge in local, national and international contexts					
3	I learn from and respect different cultures in terms of research practices.					
4	I know to communicate in multi-cultural context.					
PLO 10: Ethical and Professional Conduct						
1	I am able to apply ethical practices and behavior in all aspects of biotechnological scientific endeavors					
2	I am ethically responsible					

	towards colleagues, research subjects, the wider community, and the environment;					
3	I strive for justice, equality, honesty, and integrity in all my personal and professional pursuits.					
4	I strive for honesty and responsibility towards the environment and the knowledge we gain so as to put it to best use.					
PLO 11: Environment sensitivity						
1	I understand the need for conservation of environment					
2	I recognize the relationship between Environmental, Social and economic sustainability and my role towards it.					
3	I apply my knowledge in a diverse range of contexts pertaining to Environmental, Social and economic sustainability.					
4	I strive to develop environmentally sustainable technologies					
PLO 12: Lifelong Learning						
1	I have curiosity to learn new things.					
2	I am competent to acquire knowledge on my own through various sources such as journals, research papers etc.					
3	I feel I am a self-directed learner.					
4	I use my prior learning to approach a new problem.					
Experience at AMITY						
1	I am overall satisfied with the methodologies and pedagogical tools used by my faculty.					
2	I find the curriculum contemporary and relevant to the industry.					
3	I got ample opportunities for Industry Interaction.					
4	I am satisfied with the Internship facility provided to me.					
5	I am satisfied with the University Infrastructure.					
6	I am overall satisfied with the					

	Faculties who taught me.					
7	I am overall satisfied with the Programme.					

Thank you for taking the time to complete this survey.

Student Exit Survey

Programme Group : M. Tech. (Biotechnology)

Dear Student, the objective of this Survey is to seek your candid assessment regarding the various learning aspects of the **M. Tech. (Biotechnology)** programme. The information from this survey will be analysed and used to identify the areas of improvement.

Sl. No.	Statements	Strongly agree	Agree	Neither agree nor disagree	Somewhat Agree	t at all gree
PLO 1 : Knowledge of Biosciences and Biotechnology						
1	I am able to explain the concepts in Biosciences & Biotechnology					
2	I am able to design concepts of Biosciences and Biotechnology in multi-disciplinary context.					
3	I appraise academic learning to practical issues.					
4	I am able to plan and design R&D protocols in Biosciences & Biotechnology					
PLO 2: Holistic approach and problem solving						
1	I am able to achieve holistic development by acquiring knowledge and skills.					
2	I am able to describe and critically analyse problems in Bioscienes & Biotechnology in a research or industrial environment.					
3	I have ability to appraise, implement and test solutions.					
4	I have ability to compare the best problem solving approach					
PLO 3 : Applications in Industry/ Research						
1	I am able to describe problems in Bioscienes & Biotechnology in a research or industrial environment.					
2	I am able to critical analyse data/information.					
3	I critically analyse problems in Bioscienes & Biotechnology in a research or industrial environment.					

4	I am able to critically interpret results for driving optimum solutions.					
PLO 4 : Critical approach to generate new ideas						
1	I can critically appraise ideas					
2	I am able to design informative data and critically analyse the same to provide meaningful definitive conclusions.					
3	I can plan innovative methods.					
4	I can devise and create practical solution.					
PLO 5 : Communication skills						
1	I have ability to speak proficiently.					
2	I am competent to convey information in writing.					
3	I can design effective methods of communication.					
4	I can communicate clearly.					
PLO 6 : Interpersonal skills						
1	I am a good listener in professional business setting.					
2	I am able to organize good presentation in global environment.					
3	I can create good cross cultural environment.					
4	I possess good set of interpersonal skills required for self and organization welfare.					
PLO 7 : Development of lab to market technologies						
1	I can develop novel solutions through the use of biological processes.					
2	I have ability to develop creative solution.					
3	I can develop novel solutions through processes derived from plants, bacteria, algae and fungi as sources of renewable energy, materials and chemicals.					
4	I have ability to develop innovative and practical solution.					
PLO 8 : Ethical, environmental and social issues						
1	I understand the need for conservation of environment					
2	I strive to develop environmentally sustainable technologies					
3	I am Respectful & Empathetic towards others views					

	irrespective of caste, race, class, gender, religion etc.					
4	I understand and practice the highest standards of ethical behaviour associated with management profession.					
PLO 9 : Strategic planning						
1	I am able to effectively plan strategies to offer solutions through Biotechnology related processes.					
2	I am able to explain the critical needs and opportunities for organisational growth.					
3	I am able to implement strategies to offer solutions through Biotechnology related processes.					
4	I am able to explain the opportunities for organisational growth.					
PLO 10: Lifelong learning						
1	I have curiosity to learn new things.					
2	I am competent to acquire knowledge on my own through various sources.					
3	I feel I am a self-directed learner.					
4	I can apply my knowledge and skill set in my profession.					
5	I use my prior learning to approach a new problem.					
PLO11: Leadership skills and Societal and Environmental impact						
1	I am able to work effectively as an individual and as a member or leader of team in diverse disciplines and cultures.					
2	I am confident to initiate and lead my peer group in any situation.					
3	I can stay calm in a crisis situations.					
4	I plan to motivate my team in adverse situations.					
PLO12: Global outlook						
1	I am able to understand global issues from different perspectives.					
2	I appraise and learn from and respect different cultures.					
3	I know to communicate in multi-cultural context.					
4	I plan to implement my learning for global exposure					

Experience at AMITY						
1	I find the curriculum contemporary and relevant to the industry.					
2	I got ample opportunities for Industry Interaction.					
3	I am satisfied with the Internship facility provided to me.					
4	I am satisfied with the University Infrastructure.					
5	I am overall satisfied with the Faculties who taught me.					
6	I am overall satisfied with the Programme.					
7	I am overall satisfied with the methodologies and pedagogical tools used by my faculty.					

Thank you for taking the time to complete this survey.

Student Exit Survey

Programme - B. Tech. +M. Tech. Biotechnology **Batch _____**

Dear Student, the objective of this Survey is to seek your candid assessment regarding the various learning aspects of the programme. The information from this survey will be analysed and used to identify the areas of improvement.

Sl. No.	Statements	Strongly agree	Agree	Neither agree nor disagree	Somewhat Agree	Not at all agree
PLO 1 : Knowledge of Biosciences, Biotechnology and Engineering						
1	I have ablility to apply concepts of Biosciences in multi-disciplinary context.					
2	I have ability to apply knowledge of mathematics, science, engineering and Biotechnology in practice					
3	I have ablility to apply concepts of Biotechnology in multi-disciplinary context.					
4	I have ability to apply knowledge of research and innovation in practice.					
PLO 2:Problem solving						
1	I have ablility to describe and critically analyse problems in Bioscienes & Biotechnology in a					

	research or industrial environment.					
2	I have ability to identify, critically analyze, formulate and solve engineering problems with comprehensive knowledge in the area of specialization.					
3	I have ability to develop creative, innovative and practical solution.					
4	I have ability to implement and test solutions.					
PLO 3: Modern tools and techniques						
1	I am aware of modern tools in Biotechnology and can use them with dexterity.					
2	I have ability to select modern engineering use them efficiently.					
3	I have ability to select biological techniques and use them skillfully.					
4	I am aware of advancement in research related to biotechnology and Biosciences.					
PLO 4 : Research acumen						
1	I have ability to devise and conduct experiments, interpret data and provide well informed conclusions.					
2	I have ability to formulate research questions and set research goals.					
3	I have ability to critical analyse data/information and interpret results for driving optimum solutions.					
4	I have ability to review and systematically interpret research goals					
5	I have ability to contribute by research and innovation to solve engineering problems					
PLO 5 : Communication Skills						
1	I have ability to speak proficiently.					
2	I am competent to convey information in writing.					
3	I can Communicate clearly and effectively.					
4	I think, I am quite a good listener in professional business setting.					
5	I am good making presentation in global /cross cultural environment.					
PLO 6 : Team work Leadership and Behavioural Skills						
1	I am reliable and dependable.					
2	I am Respectful & Empathetic towards others views irrespective of caste, race, class, gender, religion etc.					
3	I am a collaborative team worker.					
4	I can stay calm in a crisis situations and motivate my team.					
5	I am confident to initiate and lead my peer group in any situation.					

PLO 7: Ethical and Professional Conduct						
1	I have ability to function professionally with ethical responsibility as an individual as well as in multidisciplinary and cross cultural teams with positive attitude					
2	I understand and practice the highest standards of ethical behaviour associated with management profession.					
3	I am ethical responsible towards colleagues, research subjects, the wider community, and the environment;					
4	I strive for justice, equality, honesty, and integrity in all my personal and professional pursuits					
PLO 8 : Employability Entrepreneurship Skill						
1	I have basic business acumen & business skills to be employable.					
2	I can create visibility for myself to draw attention of a recruiter.					
3	I possess entrepreneur skill.					
4	I always find opportunities to improve the business value chain.					
PLO 9: **Environment sensitivity**						
1	I understand the need for conservation of environment					
2	I strive to develop environmentally sustainable technologies					
3	I have learned to study the effects of research technologies on environment					
4	I have learned to conserve the association existing in the environment					
PLO 10: Lifelong Learning						
1	I have ability to appreciate the importance of goal setting and to recognize the need for life-long reflective learning					
2	I have curiosity to learn new things.					
3	I am competent to acquire knowledge on my own through various sources.					
4	I feel I am a self-directed learner.					
5	I can apply my knowledge and skill set in my profession.					
6	I use my prior learning to approach a new problem.					
Experience at AMITY						
1	I am overall satisfied with the methodologies and pedagogical tools used by my faculty.					
2	I find the curriculum contemporary and relevant to the industry.					
3	I got ample opportunities for Industry Interaction.					

4	I am satisfied with the Internship facility provided to me.					
5	I am satisfied with the University Infrastructure.					
6	I am overall satisfied with the Faculties who taught me.					
7	I am overall satisfied with the Programme.					

Thank you for taking the time to complete this survey.

Student Exit Survey

Programme – B. Sc. + M. Sc. (dual) Biotechnology **Batch _____**

Dear Student, the objective of this Survey is to seek your candid assessment regarding the various learning aspects of the programme. The information from this survey will be analysed and used to identify the areas of improvement.

Sl. No.	Statements	Strongly agree	Agree	Neither agree nor disagree	Somewhat Agree	Not at all agree
PLO 1 : Knowledge of Biosciences and Biotechnology						
1	I am able to devise, summarize the concepts in Biosciences & Biotechnology					
2	I am able to practically design concepts of Biosciences and Biotechnology in inter-disciplinary context.					
3	I have ability to decribe knowledge of mathematics, science, engineering and Biotechnology in practice					
4	I have ability to describe the knowledge of research and innovation in practice.					
PLO 2: Problem solving						
1	I demonstrate the skills to solve the problems in biotechnology					
2	I am able to categorize the skills to plan a diverse range of biotechnology divisions.					
3	I am able to describe practical solutions within biotechnology area.					
4	I can apply various decision making methods to scientifically solve any biotechnology problem.					
PLO3 : Research and development acumen						
1	I have the ability to design research proposals and set research goals.					
2	I am able to use appropriate tools in solving problems related to					

	research and development.					
3	I am able to analyse and interpret research goals					
4	I am able to use knowledge and scientifically proven methodologies to demonstrate basic medical biotechnology experiments					
PLO 4 : Cognitive and analytical skills						
1	I am able to identify and create specialized concepts of biotechnology.					
2	I am able to describe and outline the problems in Biosciences and biotechnology in a research environment.					
3	I am able to systematically explain and critically evaluate these specialized concepts in biotechnology.					
4	I can translate academic learning to practical issues and I am able to identify problems and prepare small projects for the analysis of the same.					
PLO 5 : Communication Skills						
1	I have ability to speak proficiently and explain my ideas clearly.					
2	I am good at creating presentation to effectively propagate research and technical information.					
3	I have ability to write clearly.					
4	I have ability to speak proficiently					
PLO 6 : Leadership Skills						
1	I am able to perform given assignments, experiments and activities, individually as well as in a group.					
2	I am able to also lead my team and guide them in the given activities					
3	I am reliable and dependable.					
4	I am respectful and empathetic towards others views irrespective of caste, race, class, gender, religion etc.					
PLO7:Biotechnological skills						
1	I am able to demonstrate theoretical knowledge, technical information, and research methods to solve applied biotechnological practices.					
2	I am able to analyse and interpret outcomes of these applied biotechnological skills.					

3	I can apply all the basic tools and techniques in biotechnology.					
4	I can identify resources and tools to be used in understanding the basics of biotechnology research and capable to their efficient use.					
PLO 8 :Ethical and Professional Conduct						
1	I understand and practice highest standards of ethics while applying biotechnological principles in environmental and other socially sensitive issues.					
2	I am ethically responsible towards colleagues, research subjects, wider community and environment.					
3	I am able to demonstrate the defined limits of bioethical principles					
4	I am able to apply principles in the biotechnology research and academia.					
PLO 9: Technical and Managerial skills						
1	I can design the technical and managerial skills to achieve self and organizational goals					
2	I am able to describe the technical and managerial skills to proficiently organise and achieve my set goals					
3	I have developed in the program to be reliable and dependable and manage the team to complete the assigned tasks					
4	I have the technical skill to perform experiments					
PLO10:Lifelong learning						
1	I can demonstrate lifelong learning in the field of health and allied sciences.					
2.	I am able to name and recognize skills as per requirements in the field of biotechnology					
3	I am curious to learn new things.					
4	I am competent to acquire knowledge on my own through various sources.					
PLO11:Environmental awareness and sustainability						
1	I am able to recognize the significance of societal and environmental contexts					
2	I am able to define and emphasize special stress in gaining sustainable development.					
3	I can demonstrate the need to preserve and conserve the					

	environment.					
4	I have skills to distinguish the pros and cons of biotechnological advancement on environment and surroundings.					
PLO12: Advancement of science and society						
1	I can explain the need for development of biotechnological applications for the betterment of science and society					
2	I am capable of planing research ideas for society.					
3	I am capable comparing research principles to be applied for the betterment of science and society.					
4	I am able analyse and investigate environmental and economic responsibility with respect to biotechnology.					
Experience at AMITY						
1	I am overall satisfied with the methodologies and pedagogical tools used by my faculty.					
2	I find the curriculum contemporary and relevant to the industry.					
3	I got ample opportunities for Industry Interaction.					
4	I am satisfied with the Internship facility provided to me.					
5	I am satisfied with the University Infrastructure.					
6	I am overall satisfied with the Faculties who taught me.					
7	I am overall satisfied with the Programme.					

Thank you for taking the time to complete this survey.

COMPREHENSIVE EXAMINATION

Comprehensive Examination Guidelines for B. Tech. Programmes for intended Programme Learning Outcomes

Purpose	To assess attainment of programme goals in the core and specialization areas of all the programmes in domain of Biosciences and Biotechnology.
Goal(s)	1. To assess professional ethics leadership and consensus building skills, relevant to scientific aspects of the field of life sciences. 2. To assess the knowledge and proficiency in mathematical, statistical and computational skills. 3. To assess students technical skills and hands-on training in biotechnology and the application of computers in bio-technology 4. To assess the ability to conduct research and use various tools and the holistic knowledge acquired for problem-solving and decision-

	making in biotechnology. 5. To assess the communication, leadership and team skills and ability to make ethical choices. 6. To assess the understanding of industry scenario and ability to convert opportunities into research propositions through innovation, creativity and risk-taking for sustainable competitive advantage.
Process:	The comprehensive examination would be conducted at the end of each academic year.
Format	1. The examination will be based on multiple choice questions. The question paper will consist of eight sections. 1. Section A: - General Biotechnology- 30 Questions / 20 Questions / 60 Marks 2. Section B: - Application Based- 50 Marks 3. Section C: - Specialisation/Area Specific- 15 Questions / 30 Marks 4. Section D: - General Education, General Awareness & Life-long Learning- 15 Questions / 15 Marks 5. Section E: - Ethics, Social & Environmental Impact- 10 Questions / 15 Marks 6. Section F: Information and Digital Literacy – 10 Questions / 10 Marks 7. Section G: Global Outlook – 10 Questions / 10 Marks 8. Section H: - Employability and Entrepreneurship-10 Questions / 10 Marks 1. **Section A : General Biotechnology -30 Questions/60 Marks:** This section shall comprise of theory based/conceptual questions from core areas of Biotechnology- Basics of Biotechnology, Industrial Biotechnology, Cell Biology, Biochemistry, Microbiology Molecular Biology, Biochemical engineering, Bioinformatics, Computational Biology, and integration of all above.
	3. **Section B : Application based -20 Questions/50 Marks:** This section shall comprise of questions on general biotechnology which will have focus on applications of various concepts, principles and theories.
	7. **Section C: - Specialisation/Area Specific- 15 Questions each/30 Marks:** his section shall comprise of theory and application based questions from specialised/sectoral areas of Biotechnology viz. i. Industrial and pharmaceutical biotechnology management ii. Recombinant DNA Technology iii. Bioprocess Technology iv. Cell Biology v. Biosensors vi. Stem cell and tissue engineering vii. Enzyme Technology viii. Molecular biology ix. Computational Biology x. Computer programming (This section will have an option of choosing their specialization area(s) opted by the student. More specialization areas may be added).

	5. **Section D:- General Education, General Awareness & Life-long Learning- 15 Questions/15 Marks.** This section shall comprise of questions based on general awareness in various areas, and knowledge acquired through various sources viz. seminars, conferences, news (electronic and print media), journals, magazines, reports and books related to various subjects such as sports, spirituality, religion, literature, Humanities and Social Sciences etc which may be of life-long importance.
	6. **Section E:- Bio-ethics, Social & Environmental Impact - 10 Questions/15 Marks.** This section shall comprise of questions based on issues having ethical, social, cultural and environmental implications.
	7. **Section F: Information and Digital Literacy/Modern tools usage – 10 Questions/10 Marks.** This section shall comprise of questions based on awareness and usage level of Information Technology software/tools.
	8. **Section G: Global Outlook on Research/Industry in Biosciences and Biotechnology– 10 Questions/10 Marks: -** This section shall comprise of questions based on global, social, technological, environmental developments and issues impacting research /industry.
	9. Section H: - Employability - 10 Questions/10 Marks. This section shall comprise of questions based on latest research development and trends, Planning and designing experimental research, Experimental and Theoretical Data Analysis, Investigating skills, Decision Making, Leadership & Team spirit through case-lets.

Faculty of Biosciences and Biotechnology

Comprehensive Examination Guidelines for B. Sc Programmes for intended Programme Learning Outcomes

Purpose	**:**	To assess attainment of programme goals in the core and specialisation areas of all the programmes in domain of Biosciences and Biotechnology.
Goal(s)	:	1. To assess the knowledge and understanding of fundamental relevant questions in life science and biotechnology in a synergistic framework. 2. To assess the analysing capabilities of theoretical and applied aspects of Biosciences and Biotechnology 3. To assess the ability to conduct research and use various tools and the holistic knowledge acquired for problem-solving and decision-making in biotechnology. 4. To assess the understanding of industry scenario and skills required for employability.

		5. To assess the research communication, leadership and team skills and ability to make ethical choices.
Process:	:	The comprehensive examination would be conducted at the end of each academic year.
Format	:	1. The examination will be based on multiple choice questions. The question paper will consist of eight sections. Section A: - General Biotechnology- 30 Questions / 60 Marks Section B: - Application Based- 20 Questions / 50 Marks Section C: - Specialisation/Area Specific- 15 Questions / 30 Marks Section D: - General Education, General Awareness & Life-long Learning- 15 Questions / 15 Marks Section E: - Ethics, Social & Environmental Impact- 10 Questions / 15 Marks Section F: Information and Digital Literacy – 10 Questions / 10 Marks Section G: Global Outlook – 10 Questions / 10 Marks Section H: - Employability and Entrepreneurship-10 Questions / 10 Marks

		2. Section A : General Biosciences and Biotechnology -30 Questions / 60 Marks This section shall comprise of theory / asked/conceptual questions from core area of Biotechnology – Plant sciences, Animal Sciences, Environmental studies, Chemistry, Biophysics, Biostatistics, Microbiology, Cell Biology, Biochemistry, Molecular Biology, Bioinformatics, and integration of all above.
		3 Section B: - Application Based- 20 Questions/50 Marks: - Thissection shall comprise of questions on general biotechnology which will have focus on applications of various concepts, principles and theories.
		4. Section C: - Specialisation/Area Specific- 15 Questions each/30Marks: This section shall comprise of theory and application based questions from specialised/sectoral areas of Biotechnology viz. a. Plant Biotechnology b. Animal Biotechnology c. Environmental Biotechnology d. Clinical Biochemistry e. Microbial Technology f. Genetics g. Hematology/ serology h. Infectious Disease i. Cancer Biology j. Developmental Biology k. Marine Sciences

		(This section will have an option of choosing their specialization area(s) opted by the student. More specialization areas may be added.)
		5 Section D:- General Education, General Awareness & Life-long Learning- 15 Questions/15 Marks. This section shall comprise of questions based on general awareness in various areas, and knowledge acquired through various sources viz. seminars, conferences, news (electronic and print media), journals, magazines, reports and books related to various subjects such as sports, spirituality, religion, literature, humanities and social sciences etc which may be of life-long importance.
		6 Section E:- Ethics, Social and Environmental Impact of Bioscience and Biotechnological Research- 10 Questions/15 Marks. This section shall comprise of questions based on issues having ethical, social, cultural and environmental implications.
		7. Section F: Information and Digital Literacy/Modern tools usage – 10 Questions/10 Marks This section shall comprise of questions based on awareness and usage level of Information Technology software/tools.

		8. Section G: Global Outlook on Research/Industry in Biosciences and Biotechnology– 10 Questions/10 Marks: - This section shall comprise of questions based on global, social, technological, environmental developments and issues impacting research/industry.
		9. Section H: - Employability - 10 Questions/10 Marks. This section shall comprise of questions based on latest research development and trends, planning and designing experimental research, experimental and theoretical data analysis, investigating skills, decision making, leadership & team spirit through case-lets.