AMITY UNIVERSITY

UTTAR PRADESH

Outcome Assessment Plan

Science & Technology Domain

(2018-19)

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Introduction to Faculty/Domain

Introduction to Faculty/Domain :

Science education is the basis of all socio-economic and technological advancements in the society and the country at large. Science based education helps to inculcate among the students an ability to analyze, think critically, and formulate ways to solve the problems. Knowledge of fundamental principles of science and its application to real life problems forms the basis of all research and innovation leading to technological developments. It is therefore of utmost importance to continuously innovate and upgrade the system of science education that will enable the graduates to face global challenges.

The various disciplines of Science at the basic level includes physics, chemistry & Mathematics which further diversifies into other branches as nanotechnology, forensic science, food technology, Materials science etc. Development at all levels is crucial in deciding the status of research and innovation required to compete globally. On individual level students will acquire ability to design experiments, generate and analyze data, formulate research projects and execute them leading to new scientific products and ideas.

The science curriculum at university level should include innovative ideas and approaches to enable their students to become competent in their own specialized fields and face the societal and global challenges. A degree in science must ensure to imbibe the following skills into its professionals:

(i) Design of experiments
(ii) Laboratory skills
(iii) Analyzing
(iv) Data handling
(v) Computation skills
(vi) Innovation

INTRODUCTION OF OUTCOME ASSESSMENT PLAN

INTRODUCTION OF OUTCOME ASSESSMENT PLAN

Outcomes Assessment

Outcomes 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 institutionand 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 institutionand programme level are aligned with the domain mission.

2.2 Operational Goals: The Operational Goals are defined at Domain, Institution and Programme level. The Operational Goals at the institutionand 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.

4. 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

5. 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.

6. **Programme Review:** Through the review of our programmes 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.

DOMAIN MISSION AND BROAD BASED GOAL

SCIENCE AND TECHNOLOGY

MISSION AND BROAD BASED GOAL SCIENCE AND TECHNOLOGY

3.1 Mission Statement

"To provide education at all levels in Science and 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 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."

3.2 Broad-Based Educational Goals

1	The student will become educated citizens who, as chemists contribute by applying, ethically, their knowledge to the educational, scientific, cultural, social, technological and economic development of their societies and nation at large
2	The student will demonstrate a combination of analytical, computational, and experimental knowledge and skills to make them competent to pursue higher studies
3	The student will be able to communicate effectively the knowledge gained with originality and presentation skills and develops a practical hand in laboratory work
4	The student will be able to demonstrate communication skills in English and Foreign language that enable them to effectively participate and contribute in both linguistic environments
5	The student will value the importance of lifelong learning as demonstrated by pursuing postgraduate studies, being involved in higher studies, multidisciplinary approach, professional societies, or pursuing scientific advancement and success
6	The student will contribute to society by ethical application of their specialized knowledge to the educational, scientific cultural, social, technological and economic development of the society and the country at large

3.2 Broad-Based Operational Goals

Faculty of Science & Technology will
Create appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students
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
Demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
Continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
Continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.
Arrange all necessary support system for the students to facilitate campus recruitment, higher education or starting their own ventures.
Act ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
Create opportunities for international exposure for its students and faculty.

INSTITUTION MISSION AND BROAD-BASED GOALS /OBJECTIVES

INSTITUTION MISSION AND BROAD-BASED GOALS /OBJECTIVES

4.1 AMITY INSTITUTE OF APPLIED SCIENCES (AIAS)

4.1.1 Mission Statement:

To provide education at all levels in Physical , Chemical & Mathematical Sciences & 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 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.

4.1.2 Broad Based Educational Goals:

1	The student will become educated citizens who, as chemists contribute by applying, ethically, their knowledge to the educational, scientific, cultural, social, technological and economic development of their societies and nation at large
2	The student will demonstrate a combination of analytical, computational, and experimental knowledge and skills to make them competent to pursue higher studies
3	The student will be able to communicate effectively the knowledge gained with originality and presentation skills and develops a practical hand in laboratory work
4	The student will be able to demonstrate communication skills in English and Foreign language that enable them to effectively participate and contribute in both linguistic environments
5	The student will value the importance of lifelong learning as demonstrated by pursuing postgraduate studies, being involved in higher studies, multidisciplinary approach, professional societies, or pursuing scientific advancement and success
6	The student will contribute to society by ethical application of their specialized knowledge to the educational, scientific cultural, social, technological and economic development of the society and the country at large

4.1.3 Broad Based Operational Goals:

Faculty of AIAS will
Create appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students
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
Demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
Continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
Continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.
Arrange all necessary support system for the students to facilitate campus recruitment, higher education or starting their own ventures.
Act ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
Create opportunities for international exposure for its students and faculty.

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

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

5.1 Bachelor of Science (Hons) Chemistry

5.1.1 Programme Mission:

To provide education at undergraduate levels in Chemical Sciences & 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 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

Programme Name – B.Sc. (Hons) Chemistry
Programme Educational Objectives
PEO1: The student will become educated citizens who, as chemists contribute by applying, ethically, their knowledge to the educational, scientific, cultural, social, technological and economic development of their societies and nation at large
PEO2: The student will demonstrate a combination of analytical, computational, and experimental knowledge and skills to make them competent to pursue higher studies
PEO3: The student will be able to communicate effectively the knowledge gained with originality and presentation skills and develops a practical hand in laboratory work
PEO4: The student will be able to demonstrate communication skills in English and Foreign language that enable them to effectively participate and contribute in both linguistic environments
PEO5: The student will value the importance of lifelong learning as demonstrated by pursuing postgraduate studies, being involved in higher studies, multidisciplinary approach, professional societies, or pursuing scientific advancement and success
PEO6: The student will contribute to society by ethical application of their specialized knowledge to the educational, scientific cultural, social, technological and economic development of the society and the country at large

5.1.3 Programme Learning Outcomes

PLO1 : The student will have the ability to apply knowledge of the major areas of inorganic, organic and physical chemistry including a wide range of factual information and experimentally observed phenomena and the historical development and current application of derived theoretical and mechanistic concepts.
PLO2 : The student will have the ability to retrieve, critically evaluate and present information in an appropriate format from the chemical literature.
PLO3 : The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations related to Chemistry.
PLO4 : The student will have the ability to solve unseen chemical problems, both qualitative and quantitative, by interpretation and manipulation of experimental data.
PLO5 : The student will have the ability to communicate effectively on complex activities with the Scientific community in the area of chemistry and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, make effective presentations, and give and receive clear instructions
PLO6 : The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings.
PLO7 : The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts.
PLO8 : The student will have the ability to apply ethical principles and demonstrate professional ethics and responsibilities and norms of the Science & Technology practice related to Chemical sciences.
PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start-ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues.
PLO10 : The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude.
PLO11 : The student will have the ability to assimilate and integrate knowledge gained in the course of different modules throughout the various years of study and to apply this when required
PLO12 : The student will have the ability to identify the impact of scientific knowledge in the field of Chemistry and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

Assessment Instruments for Programme Learning Outcomes	**Performance Objectives (Targets/Criteria)**
Direct Measures:	
1. Behavioral Observations 1.1. List of Outcomes assessed by this Measure: PLO6 : The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings.	80% students should secure a grade 6 and above on a 10 point scale in a journal for success component of behaviuoral science course

2. Comprehensive Examination 2.1. List of Outcomes assessed by this Measure: PLO1 : The student will have the ability to apply knowledge of the major areas of inorganic, organic and physical chemistry including a wide range of factual information and experimentally observed phenomena and the historical development and current application of derived theoretical and mechanistic concepts PLO5 : The student will have the ability to communicate effectively on complex activities with the Scientific community in the area of chemistry and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, make effective presentations, and give and receive clear instructions PLO6 : The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings. PLO8 : The student will have the ability to apply ethical principles and demonstrate professional ethics and responsibilities and norms of the Science & Technology practice related to Chemical sciences. PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start-ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues PLO10 : The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. PLO11 : The student will have the ability to assimilate and integrate knowledge gained in the course of different modules throughout the various years of study and to apply this when required PLO12 : The student will have the ability to identify the impact of scientific knowledge in the field of Chemistry and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.	80% students shall pass the exam
3. Course-embedded assignments (Class Tests, Home Assignments, Quiz, Seminar, Term Paper, Presentations) 3.1. List of Outcomes assessed by this Measure: PLO2 : The student will have the ability to retrieve, critically evaluate and present information in an appropriate format from the chemical literature. PLO3 : The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations related to Chemistry. PLO4 : The student will have the ability to solve unseen chemical problems, both qualitative and quantitative, by interpretation and manipulation of experimental data. PLO7 : The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts. PLO8 : The student will have the ability to apply ethical principles and demonstrate professional ethics and responsibilities and norms of the Science & Technology practice related to Chemical sciences. PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start-ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues	80% students shall pass the exam
4. Viva Voce 4.1. List of Outcomes assessed by this Measure: PLO1 : The student will have the ability to apply knowledge of the major areas of inorganic, organic and physical chemistry including a wide range of factual information and experimentally observed phenomena and the historical development and current application of derived theoretical and mechanistic concepts PLO8 : The student will have the ability to apply ethical principles and demonstrate professional ethics and responsibilities and norms of the Science & Technology practice related to Chemical sciences. PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start-ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues	80% students shall pass the exam
5. Scoring Rubrics 5.1. List of Outcomes assessed by this Measure: PLO5 : The student will have the ability to communicate effectively on complex activities with the Scientific community in the area of chemistry and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, make effective presentations, and give and receive	100% students will undertake and complete the course

clear instructions PLO6 : The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings. PLO10 : The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. PLO11 : The student will have the ability to assimilate and integrate knowledge gained in the course of different modules throughout the various years of study and to apply this when required	
6. Plagiarism check 6.1. List of Outcomes assessed by this Measure: PLO8 : The student will have the ability to apply ethical principles and demonstrate professional ethics and responsibilities and norms of the Science & Technology practice related to Chemical sciences. PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start-ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues	100% students are checked for plagiarism in NTCC report submissions and are allowed to appear for Viva –voce upon obtaining plagiarism % below 15%
Indirect Measures:	
1. Comprehensive Exam 1.1 List of Outcomes assessed by this Measure: PLO2 : The student will have the ability to retrieve, critically evaluate and present information in an appropriate format from the chemical literature. PLO3 : The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations related to Chemistry. PLO8 : The student will have the ability to apply ethical principles and demonstrate professional ethics and responsibilities and norms of the Science & Technology practice related to Chemical sciences. PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start-ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues	80% students response range between 4-5 on the likert scale in the survey
2. Exit Interviews 2.1 List of Outcomes assessed by this Measure: PLO1 : The student will have the ability to apply knowledge of the major areas of inorganic, organic and physical chemistry including a wide range of factual information and experimentally observed phenomena and the historical development and current application of derived theoretical and mechanistic concepts PLO4 : The student will have the ability to solve unseen chemical problems, both qualitative and quantitative, by interpretation and manipulation of experimental data. PLO5 : The student will have the ability to communicate effectively on complex activities with the Scientific community in the area of chemistry and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, make effective presentations, and give and receive clear instructionsPLO6 : The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings. PLO7 : The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts. PLO8 : The student will have the ability to apply ethical principles and demonstrate professional ethics and responsibilities and norms of the Science & Technology practice related to Chemical sciences. PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start-ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues PLO10 : The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. PLO11 : The student will have the ability to assimilate and integrate knowledge gained in the course of different modules throughout the various years of study and to apply this when required PLO12 : The student will have the ability to identify the impact of scientific knowledge in the field of Chemistry and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.	80% students should have response more than 75% in Student Exit Survey

Summary of Results from Implementing Direct Measures of PLOs:	**Performance Target Was…**	
	Met	**Not Met**
Behavioral Observations	Met	-
comprehensive exam	Met	-
Course-embedded assignments (e.g. Class Tests, Home Assignments, Quiz, Seminar, Term Paper , Presentations)	Met	-
Viva Voce	Met	-
Scoring Rubrics	Met	-
Plagiarism check	Met	-
Summary of Results from Implementing Indirect Measures of PLOs:	**Performance Target Was…**	
	Met	**Not Met**
Comprehensive Exam	Met	-
Exit interviews	Met	-

5.1.4 Mapping of Assessment Measures to Intended Student Learning Outcomes

Assessment Tools / Programme Learning Outcomes	Direct			Indirect		
	Comprehensive Examination	**Scoring Rubrics**		**Exit Interviews**	**Industry Guide Feedback**	**Alumni Surveys**
PLO1	✓			✓		✓
PLO2					✓	
PLO3					✓	
PLO4				✓		✓
PLO5	✓	✓		✓		✓
PLO6	✓	✓		✓		✓
PLO7				✓		✓
PLO8	✓			✓	✓	
PLO9	✓			✓	✓	
PLO10	✓	✓		✓		✓
PLO11	✓	✓		✓		✓
PLO12	✓			✓		✓

5.1.5 Assessment Of Programme Operational Outcomes

Bachelor's Level Programmes

Programme Name – B.Sc. (Hons) Chemistry
Programme Operational Objectives
Create appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students
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
Demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
Continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
Continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.
Arrange all necessary support system for the students to facilitate campus recruitment, higher education or starting their own ventures.
Act ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
Create opportunities for international exposure for its students and faculty.
Programme Operational Outcomes
POO1 : Programme of Bachelor of Science in Chemistry (Hons) will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students.
POO2 : The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements.
POO3 : The students of Programme of Bachelor of Science in Chemistry (Hons) will graduate in timely manner.
POO4 : Programme of Bachelor of Science in Chemistry (Hons) shall maintain appropriate academic facilities and technological Resources for teaching and learning.
POO5 : The students of Programme of Bachelor of Science in Chemistry (Hons) will participate in Co Curricular and Extra Curricular activities.
POO6 : Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge.
POO7 : The Programme of Bachelor of Science in Chemistry (Hons) will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff.
POO8 : Programme of Bachelor of Science in Chemistry (Hons) will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure.

POO9 : Programme of Bachelor of Science in Chemistry (Hons) will be continuously engaged in developing/ reviewing processes, policies and systems to achieve prestigious accreditations from various national, international bodies and ranking bodies.
POO10 : Programme of Bachelor of Science in Chemistry (Hons) will develop and maintain strong relationship with corporate and support all the students for quality placements or join family business or start their own venture.

Assessment Instruments for Programme Operational Outcomes	**Performance Objectives (Targets/Criteria)**
1. Student Satisfaction Surveys 1.1. List of Outcomes assessed by this Measure: POO1 : Programme of Bachelor of Science in Chemistry (Hons) will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students.POO2 POO8 : Programme of Bachelor of Science in Chemistry (Hons) will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure. POO10 : Programme of Bachelor of Science in Chemistry (Hons) will develop and maintain strong relationship with corporate and support all the students for quality placements or join family business or start their own venture	80% students response range between 3-5 on the likert scale in the survey
2. Exit Surveys 2.1 List of Outcomes assessed by this Measure: POO1 : Programme of Bachelor of Science in Chemistry (Hons) will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students. POO2 : The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements POO4 : Programme of Bachelor of Science in Chemistry (Hons) shall maintain appropriate academic facilities and technological Resources for teaching and learning. POO5 : The students of Programme of Bachelor of Science in Chemistry (Hons) will participate in Co Curricular and Extra Curricular activities POO6 : Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge POO8 : Programme of Bachelor of Science in Chemistry (Hons) will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure. POO9 : Programme of Bachelor of Science in Chemistry (Hons) will be continuously engaged in developing/ reviewing processes, policies and systems to achieve prestigious accreditations from various national, international bodies and ranking bodies. POO10 : Programme of Bachelor of Science in Chemistry (Hons) will develop and maintain strong relationship with corporate and support all the students for quality placements or join family business or start their own venture	80% students should have response more than 75% in Student Exit Survey
3. Course Evaluations 3.1. List of Outcomes assessed by this Measure: POO1 : Programme of Bachelor of Science in Chemistry (Hons) will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students. POO3 : The students of Programme of Bachelor of Science in Chemistry (Hons) will graduate in timely manner	80% students shall meet the pass criteria in course evaluation

4. Curriculum/Program Reviews 4.1. List of Outcomes assessed by this Measure: POO1 : Programme of Bachelor of Science in Chemistry (Hons) will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students. POO3 : The students of Programme of Bachelor of Science in Chemistry (Hons) will graduate in timely manner POO4 : Programme of Bachelor of Science in Chemistry (Hons) shall maintain appropriate academic facilities and technological Resources for teaching and learning.	Annual review of curriculum/ program structures by AAB and BoS
5.Benchmarking Studies 5.1. List of Outcomes assessed by this Measure: POO2 : The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements POO7 : The Programme of Bachelor of Science in Chemistry (Hons) will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff.	Benchmarking with 2-3 National / International Universities/ colleges of repute
6. Faculty and Staff Performance Reviews 6.1. List of Outcomes assessed by this Measure: POO1 : Programme of Bachelor of Science in Chemistry (Hons) will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students. POO5 : The students of Programme of Bachelor of Science in Chemistry (Hons) will participate in Co Curricular and Extra Curricular activities POO10 : Programme of Bachelor of Science in Chemistry (Hons) will develop and maintain strong relationship with corporate and support all the students for quality placements or join family business or start their own venture	Feedback
7. Placements Records of graduates 7.1. List of Outcomes assessed by this Measure: POO3 : The students of Programme of Bachelor of Science in Chemistry (Hons) will graduate in timely manner POO10 : Programme of Bachelor of Science in Chemistry (Hons) will develop and maintain strong relationship with corporate and support all the students for quality placements or join family business or start their own venture	80% students shall be placed

Summary of Results from Implementing Measures of POOs:	**Performance Target Was…**	
	Met	**Not Met**
Students Satisfaction Surveys	Met	-
Exit Surveys	Met	-
Course Evaluations	Met	-
Curriculum/Program Reviews	Met	-
Benchmarking Studies	Met	-
Placements Records of Graduates	Met	-
Students Satisfaction Surveys	-	Not Met

5.1.6 Mapping of Assessment Measures to Operational Outcomes

Assessment Tools / Programme Operational Outcomes	Students Satisfaction Surveys	Exit Surveys	Course Evaluations	Curriculum/Program Reviews	Benchmarking Studies	Faculty and Staff Performance Reviews	Placements Records of graduate
POO1	✓	✓	✓	✓		✓	
POO2	✓	✓			✓		
POO3			✓	✓			✓
POO4		✓		✓			
POO5		✓				✓	
POO6		✓					
POO7					✓		
POO8	✓	✓					
POO9		✓					
POO10	✓	✓				✓	✓

5.2 Bachelor of Science (Hons) Physics

5.2.1 Programme Mission:

To provide education at undergraduate level in Physical Sciences & 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 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/Goals:

Programme Name – B.Sc. (Hons) Physics

Programme Educational Objectives/Goals:

PEO1: The student will become educated citizens who, as Physicist contribute by applying, ethically, their knowledge to the educational, scientific, cultural, social, technological and economic development of their societies and nation at large
PEO2: The student will demonstrate a combination of analytical, computational, and experimental knowledge and skills to make them competent to pursue higher studies
PEO3: The student will be able to communicate effectively the knowledge gained with originality and presentation skills and develops a practical hand in laboratory work
PEO4: The student will be able to demonstrate communication skills in English and Foreign language that enable them to effectively participate and contribute in both linguistic environments
PEO5: The student will value the importance of lifelong learning as demonstrated by pursuing postgraduate studies, being involved in higher studies, multidisciplinary approach, professional societies, or pursuing scientific advancement and success
PEO6: The student will contribute to society by ethical application of their specialized knowledge to the educational, scientific cultural, social, technological and economic development of the society and the country at large

5.2.3 Programme Learning Outcomes

PLO1 : The student will have the ability to apply knowledge, skills and attitudes appropriate to the physical sciences, their fundamentals and specialization to the solution of complex Science problems.
PLO2 : The student will have the ability to retrieve, critically evaluate and present information in an appropriate format from the Physical literature.
PLO3 : The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations related to Physics.
PLO4 : The student will have the ability to respond effectively to unfamiliar problems in scientific contexts
PLO5 : The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations, and receive clear instructions. To demonstrate effective communication in oral and written and utilize information effectively.
PLO6 : The student will have the ability to work both autonomously and collaboratively and to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings.
PLO7 : The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts . Interact effectively within a global team / learning / professional group, recognize, support or be proactive in research and technical collaboration.
PLO8 : The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice related to Physical sciences.
PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own startups or professional practice.
PLO10 : The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude.
PLO11 : The student will have the ability to assimilate and integrate knowledge gained in the course of different modules throughout the various years of study and to apply this when required
PLO12 : The student will have the ability to identify the impact of scientific knowledge in the field of Physics and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development

Assessment Instruments for ProgrammeLearning Outcomes	**Performance Objectives (Targets/Criteria)**
Direct Measures:	
1. Behavioral Observations 1.1. List of Outcomes assessed by this Measure: PLO6 : The student will have the ability to work both autonomously and collaboratively and to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings	80% students should secure a grade 6 and above on a 10 point scale in a journal for success component of behaviuoral science course

2. Comprehensive Examination 2.1. List of Outcomes assessed by this Measure: PLO1 : The student will have the ability to apply knowledge, skills and attitudes appropriate to the physical sciences, their fundamentals and specialization to the solution of complex Science problems. PLO5 : The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations, and receive clear instructions. To demonstrate effective communication in oral and written and utilize information effectively. PLO6 : The student will have the ability to work both autonomously and collaboratively and to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings PLO8 : The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice related to Physical sciences PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own startups or professional practice. PLO10 : The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude PLO11 : The student will have the ability to assimilate and integrate knowledge gained in the course of different modules throughout the various years of study and to apply this when required PLO12 : The student will have the ability to identify the impact of scientific knowledge in the field of Physics and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development	80% students shall pass the exam
3. Course-embedded assignments (Class Tests, Home Assignments, Quiz, Seminar, Term Paper, Presentations) 3.1. List of Outcomes assessed by this Measure: PLO2 : The student will have the ability to retrieve, critically evaluate and present information in an appropriate format from the Physical literature PLO3 : The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations related to Physics PLO4 : The student will have the ability to respond effectively to unfamiliar problems in scientific contexts PLO7 : The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts . Interact effectively within a global team / learning / professional group, recognize, support or be proactive in research and technical collaboration. PLO8 : The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice related to Physical sciences PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own startups or professional practice.	80% students shall pass the exam
4. Viva Voce 4.1. List of Outcomes assessed by this Measure: PLO1 : The student will have the ability to apply knowledge, skills and attitudes appropriate to the physical sciences, their fundamentals and specialization to the solution of complex Science problems. PLO8 : The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice related to Physical sciences PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own startups or professional practice.	80% students shall pass the exam
5. Scoring Rubrics 5.1. List of Outcomes assessed by this Measure: PLO5 : The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations, and receive clear instructions. To demonstrate effective	100% students will undertake and complete the course

communication in oral and written and utilize information effectively. PLO6 : The student will have the ability to work both autonomously and collaboratively and to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings PLO10 : The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude PLO11 : The student will have the ability to assimilate and integrate knowledge gained in the course of different modules throughout the various years of study and to apply this when required	
6. Plagiarism check 6.1. List of Outcomes assessed by this Measure: PLO8 : The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice related to Physical sciences PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own startups or professional practice.	100% students are checked for plagiarism in NTCC report submissions and are allowed to appear for Viva –voce upon obtaining plagiarism % below 15%
Indirect Measures:	
1. Comprehensive Exam 1.1 List of Outcomes assessed by this Measure: PLO2 : The student will have the ability to retrieve, critically evaluate and present information in an appropriate format from the Physical literature PLO3 : The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations related to Physics PLO8 : The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice related to Physical sciences PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own startups or professional practice.	80% students response range between 4-5 on the likert scale in the survey
2. Exit Interviews 2.1 List of Outcomes assessed by this Measure: PLO1 : The student will have the ability to apply knowledge, skills and attitudes appropriate to the physical sciences, their fundamentals and specialization to the solution of complex Science problems. PLO4 : The student will have the ability to respond effectively to unfamiliar problems in scientific contexts PLO5 : The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations, and receive clear instructions. To demonstrate effective communication in oral and written and utilize information effectively. PLO6 : The student will have the ability to work both autonomously and collaboratively and to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings PLO7 : The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts . Interact effectively within a global team / learning / professional group, recognize, support or be proactive in research and technical collaboration. PLO8 : The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice related to Physical sciences PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own startups or professional practice. PLO10 : The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude PLO11 : The student will have the ability to assimilate and integrate knowledge gained in the course of different modules throughout the various years of study and to apply this when required PLO12 : The student will have the ability to identify the impact of scientific knowledge in the field	80% students should have response more than 75% in Student Exit Survey

of Physics and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development		
Summary of Results from Implementing Direct Measures of PLOs:	**Performance Target Was…**	
	Met	**Not Met**
Behavioral Observations	Met	-
Comprehensive exam	Met	-
Course-embedded assignments (e.g. Class Tests, Home Assignments, Quiz, Seminar, Term Paper , Presentations)	Met	-
Viva Voce	Met	-
Scoring Rubrics	Met	-
Plagiarism check	Met	-
Summary of Results from Implementing Indirect Measures of PLOs:	**Performance Target Was…**	
	Met	**Not Met**
Comprehensive Exam	Met	-
Exit interviews	Met	-

5.2.4 Mapping of Assessment Measures to Intended Student Learning Outcomes

Assessment Tools / Programme Learning Outcomes	Direct			Indirect		
	Comprehensive Examination	**Scoring Rubrics**		**Exit Interviews**	**Industry Guide Feedback**	**Alumni Surveys**
PLO1	✓			✓		✓
PLO2					✓	
PLO3					✓	
PLO4				✓		✓
PLO5	✓	✓		✓		✓
PLO6	✓	✓		✓		✓
PLO7				✓		✓

PLO8	✓			✓	✓	
PLO9	✓			✓	✓	
PLO10	✓	✓		✓		✓
PLO11	✓	✓		✓		✓
PLO12	✓			✓		✓

5.2.5 Assessment Of ProgrammeOperational Outcomes

Bachelor's Level Programmes

Programme Name – Programme 1
Programme Operational Objectives
Create appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students
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
Demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
Continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
Continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.
Arrange all necessary support system for the students to facilitate campus recruitment, higher education or starting their own ventures.
Act ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
Create opportunities for international exposure for its students and faculty.
ProgrammeOperationalOutcomes
POO1 : Programme of Bachelor of Science (Hons) Physics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students.
POO2 : The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements.
POO3 : Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge.
POO4 : Programme of Bachelor of Science (Hons) Physics will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure.
POO5 : The Programme of Bachelor of Science (Hons) Physics will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff.
POO6 : Programme of Bachelor of Science (Hons) Physics will develop and maintain strong

relationship with corporate and support all the students for quality placements or join family business or start their own venture.	
POO7 : Programme of Bachelor of Science (Hons) Physics will be continuously engaged in developing/ reviewing processes, policies and systems to achieve prestigious accreditations from various national, international bodies and ranking bodies.	
POO8 : The students of Bachelor of Science (Hons) Physics will graduate in timely manner & prepare for higher education.	
Assessment Instruments for ProgrammeOperationalOutcomes	**Performance Objectives (Targets/Criteria)**
1. Measure 1**Students Satisfaction Surveys** 1.1. List of Outcomes assessed by this Measure: POO1 : Programme of Bachelor of Science (Hons) Physics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students POO4 : Programme of Bachelor of Science (Hons) Physics will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure POO5 : The Programme of Bachelor of Science (Hons) Physics will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff	80% students response range between 4-5 on the likert scale in the survey
2.Measure 2**Exit Surveys** 1.1 List of Outcomes assessed by this Measure: POO2 : The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements POO5 : The Programme of Bachelor of Science (Hons) Physics will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff POO8 : The students of Bachelor of Science (Hons) Physics will graduate in timely manner & prepare for higher education	Individual student's score should be more than 75% in the exit survey
3.Measure 3 **Course Evaluations** 3.1List of Outcomes assessed by this Measure: POO2 : The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements POO4 : Programme of Bachelor of Science (Hons) Physics will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure	80% students shall meet the pass criteria in course evaluation
4.Measure 4 **Curriculum/Program Reviews** 4.1 List of Outcomes assessed by this Measure: POO3 : Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge	Annual review of curriculum/ program structures by AAB and BoS
5.Measure 5 **Benchmarking Studies** 5.1. List of Outcomes assessed by this Measure: POO1 : Programme of Bachelor of Science (Hons) Physics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students POO7 : Programme of Bachelor of Science (Hons) Physics will be continuously engaged in developing/ reviewing processes, policies and systems to achieve prestigious accreditations from various national, international bodies and ranking bodies	Benchmarking with 2-3 National / International Universities/ colleges of repute
6. Measure 6 **Faculty and Staff Performance Reviews** 6.1. List of Outcomes assessed by this Measure: POO1 : Programme of Bachelor of Science (Hons) Physics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of	Annual PBAS submitted by all faculty/ staff members should have API score as per the University requirements

students POO5 : The Programme of Bachelor of Science (Hons) Physics will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff		
7. Measure 7 **Placements Records of graduates** 7.1. List of Outcomes assessed by this Measure: POO3 : Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge	80% students shall be placed	
Summary of Results from Implementing Measures of POOs:	Performance Target Was…	
	Met	Not Met
Students Satisfaction Surveys	Met	
Exit Surveys	Met	
Course Evaluations	Met	
Curriculum/Program Reviews	Met	
Benchmarking Studies	Met	
Faculty and Staff Performance Reviews	Met	
Placements Records of Graduates		*Not Met*

5.2.6 Mapping of Assessment Measures to Operational Outcomes

Assessment Tools / Programme Operational Outcomes	Tool 1 Student Satisfaction Surveys	Tool 2 Exit Surveys	Too 3 Course Evaluations	Too 4 Curriculum/Program Reviews	Tool 5 Benchmarking Studies	Tool 6 Faculty and Staff Performance Reviews	Tool 7 Placement records of graduates
Programme Operational Outcome 1	✓				✓		
Programme Operational Outcome 2		✓					✓
Programme Operational Outcome 3			✓	✓			
Programme Operational Outcome 4	✓		✓			✓	
Programme Operational Outcome 5	✓	✓					
Programme Operational Outcome 6						✓	
Programme Operational Outcome 7					✓	✓	
Programme Operational Outcome 8		✓					

5.3 Bachelor of Science (Hons) Mathematics

5.3.1 Programme Mission

To provide education at undergraduatelevel in Mathematical Sciences & 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 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.

5.3.2 Bachelor's Level Programmes

Programme Name – B.Sc. (Hons) Mathematics
Programme Educational Objectives
PEO1: The student will become educated citizens who, as chemists contribute by applying, ethically, their knowledge to the educational, scientific, cultural, social, technological and economic development of their societies and nation at large
PEO2: The student will demonstrate a combination of analytical, computational, and experimental knowledge and skills to make them competent to pursue higher studies
PEO3: The student will be able to communicate effectively the knowledge gained with originality and presentation skills and develops a practical hand in laboratory work
PEO4: The student will be able to demonstrate communication skills in English and Foreign language that enable them to effectively participate and contribute in both linguistic environments
PEO5: The student will value the importance of lifelong learning as demonstrated by pursuing postgraduate studies, being involved in higher studies, multidisciplinary approach, professional societies, or pursuing scientific advancement and success
PEO6: The student will contribute to society by ethical application of their specialized knowledge to the educational, scientific cultural, social, technological and economic development of the society and the country at large

5.3.3 **Programme Learning Outcomes**

PLO1 : The student will have the ability to apply the knowledge of mathematical sciences, their fundamentals and specialization to the solution of complex Science problems.
PLO2 : The student will have the ability to identify, define and analyze scientific problems and identify or create processes to solve them Competently use appropriate field and techniques for the study of advance scientific problems/challenges.
PLO3 : The student will have the ability to use a confident familiarity with a broad range of appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations within a scientific environment. Ability to use and apply professional software for scientific data analysis.
PLO4 : The student will have the ability to use and apply core scientific principles and techniques to facilitate problem solving in Scientific fields. Ability to respond effectively to unfamiliar problems in scientific contexts
PLO5 : The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, make effective presentations, and give and receive clear instructions
PLO6 : The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings.
PLO7 : The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts. Interact effectively within a global team / learning / professional group, recognize, support or be proactive in research and technical collaboration.
PLO8: The student s will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice.
PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues.
PLO10 : The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude.
PLO11 : The student will have the ability to demonstrate knowledge and understanding of the Scientific principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments
PLO12 : The student will have the ability to identify the impact of scientific knowledge and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

Assessment Instruments for Programme Learning Outcomes	Performance Objectives (Targets/Criteria)
Direct Measures:	
1. Behavioral Observations 1.1. List of Outcomes assessed by this Measure: PLO6 : The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings	80% students should secure a grade 6 and above on a 10 point scale in a journal for success component of behaviuoral science course
2. Comprehensive Examination 2.1. List of Outcomes assessed by this Measure: PLO1 : The student will have the ability to apply the knowledge of mathematical sciences, their fundamentals and specialization to the solution of complex Science problems. PLO5 : The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, make effective presentations, and give and receive clear instructions PLO6 : The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings PLO8: The student s will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice. PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues PLO10 : The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. PLO11 : The student will have the ability to demonstrate knowledge and understanding of the Scientific principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments PLO12 : The student will have the ability to identify the impact of scientific knowledge and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development	80% students shall pass the exam
3. Course-embedded assignments (Class Tests, Home Assignments, Quiz, Seminar, Term Paper, Presentations) 3.1. List of Outcomes assessed by this Measure: PLO2 : The student will have the ability to identify, define and analyze scientific problems and identify or create processes to solve them Competently use appropriate field and techniques for the study of advance scientific problems/challenges PLO3 : The student will have the ability to use a confident familiarity with a broad range of appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations within a scientific environment. Ability to use and apply professional software for scientific data analysis PLO4 : The student will have the ability to use and apply core scientific principles and techniques to facilitate problem solving in Scientific fields. Ability to respond effectively to unfamiliar problems in scientific contexts PLO7 : The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts. Interact effectively within a global team / learning / professional group, recognize, support or be proactive in research and technical collaboration. PLO8: The student s will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice. PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start ups or professional practice. Ability to make decisions on the basis of rigorous and	80% students shall pass the exam

independent thought, taking into account ethical and professional issues	
4. Viva Voce 4.1. List of Outcomes assessed by this Measure: PLO1 : The student will have the ability to apply the knowledge of mathematical sciences, their fundamentals and specialization to the solution of complex Science problems. PLO8: The student s will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice. PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues	80% students shall pass the exam
5. Scoring Rubrics 5.1. List of Outcomes assessed by this Measure: PLO5 : The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, make effective presentations, and give and receive clear instructions PLO6 : The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings PLO10 : The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. PLO11 : The student will have the ability to demonstrate knowledge and understanding of the Scientific principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments	100% students will undertake and complete the course
6. Plagiarism check 6.1. List of Outcomes assessed by this Measure: PLO8: The student s will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice. PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues	100% students are checked for plagiarism in NTCC report submissions and are allowed to appear for Viva –voce upon obtaining plagiarism % below 15%
Indirect Measures:	
1. Comprehensive Exam 1.1 List of Outcomes assessed by this Measure: PLO2 : The student will have the ability to identify, define and analyze scientific problems and identify or create processes to solve them Competently use appropriate field and techniques for the study of advance scientific problems/challenges PLO3 : The student will have the ability to use a confident familiarity with a broad range of appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations within a scientific environment. Ability to use and apply professional software for scientific data analysis PLO8: The student s will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice. PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues	80% students response range between 4-5 on the likert scale in the survey
2. Exit Interviews 2.1 List of Outcomes assessed by this Measure: PLO1 : The student will have the ability to apply the knowledge of mathematical sciences,	80% students should have response more than 75% in Student Exit Survey

their fundamentals and specialization to the solution of complex Science problems. PLO4 : The student will have the ability to use and apply core scientific principles and techniques to facilitate problem solving in Scientific fields. Ability to respond effectively to unfamiliar problems in scientific contexts PLO5 : The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, make effective presentations, and give and receive clear instructions PLO6 : The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings PLO7 : The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts. Interact effectively within a global team / learning / professional group, recognize, support or be proactive in research and technical collaboration. PLO8: The student s will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice. PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues PLO10 : The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. PLO11 : The student will have the ability to demonstrate knowledge and understanding of the Scientific principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments PLO12 : The student will have the ability to identify the impact of scientific knowledge and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development	

Summary of Results from Implementing Direct Measures of PLOs:	**Performance Target Was…**	
	Met	**Not Met**
Behavioral Observations	Met	-
comprehensive exam	Met	-
Course-embedded assignments (e.g. Class Tests, Home Assignments, Quiz, Seminar, Term Paper , Presentations)	Met	-
Viva Voce	Met	-
Scoring Rubrics	Met	-
Plagiarism check	Met	-

Summary of Results from Implementing Indirect Measures of PLOs:	**Performance Target Was…**	
	Met	**Not Met**
Comprehensive Exam	Met	-
Exit interviews	Met	-

5.3.4 Mapping of Assessment Measures to Intended Student Learning Outcomes

Assessment Tools / Programme Learning Outcomes	Direct			Indirect		
	Comprehensive Examination	**Scoring Rubrics**		**Exit Interviews**	**Industry Guide Feedback**	**Alumni Surveys**
PLO1	✓			✓		✓
PLO2					✓	
PLO3					✓	
PLO4				✓		✓
PLO5	✓	✓		✓		✓
PLO6	✓	✓		✓		✓
PLO7				✓		✓
PLO8	✓			✓	✓	
PLO9	✓			✓	✓	
PLO10	✓	✓		✓		✓
PLO11	✓	✓		✓		✓
PLO12	✓			✓		✓

5.3.5 Assessment Of Programme Operational Outcomes

Bachelor's Level Programmes

Programme Name – B.Sc. (Hons) Mathematics
Programme Operational Objectives
Create appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students
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
Demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
Continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
Continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.
Arrange all necessary support system for the students to facilitate campus recruitment, higher education or starting their own ventures.
Act ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
Create opportunities for international exposure for its students and faculty.
Programme Operational Outcomes
POO1 : Programme of Bachelor of Science (Hons) Mathematics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students.
POO2 : The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements.
POO3 : Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge.
POO4 : Programme Bachelor of Science (Hons) Mathematics will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure.
POO5 : The Programme of Bachelor of Science (Hons) Mathematics will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff.
POO6 : Programme of Bachelor of Science (Hons) Mathematics will develop and maintain strong relationship with corporate and support all the students for quality placements or join family business or start their own venture.
POO7 : Programme of Bachelor of Science (Hons) Mathematics will be continuously engaged in developing/ reviewing processes, policies and systems to achieve prestigious accreditations from various national, international bodies and ranking bodies.
POO8 : The students of Bachelor of Science (Hons) Mathematics will graduate in timely manner & prepare for higher education.

Assessment Instruments for Programme Operational Outcomes	**Performance Objectives (Targets/Criteria)**
1. Student Satisfaction Surveys 1.1. List of Outcomes assessed by this Measure: POO1 : Programme of Bachelor of Science (Hons) Mathematics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students POO2 : The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements. POO8 : The students of Bachelor of Science (Hons) Mathematics will graduate in timely manner & prepare for higher education.	80% students response range between 3-5 on the likert scale in the survey
3. Exit Surveys 2.2 List of Outcomes assessed by this Measure: POO1 : Programme of Bachelor of Science (Hons) Mathematics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students POO2 : The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements. POO4 : Programme Bachelor of Science (Hons) Mathematics will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure POO5 : The Programme of Bachelor of Science (Hons) Mathematics will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff POO6 : Programme of Bachelor of Science (Hons) Mathematics will develop and maintain strong relationship with corporate and support all the students for quality placements or join family business or start their own venture. POO8 : The students of Bachelor of Science (Hons) Mathematics will graduate in timely manner & prepare for higher education.	80% students should have response more than 75% in Student Exit Survey
3. Course Evaluations 3.1. List of Outcomes assessed by this Measure: POO1 : Programme of Bachelor of Science (Hons) Mathematics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students POO3 : Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge	80% students shall meet the pass criteria in course evaluation
4. Curriculum/Program Reviews 4.1. List of Outcomes assessed by this Measure: POO1 : Programme of Bachelor of Science (Hons) Mathematics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students POO3 : Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge POO4 : Programme Bachelor of Science (Hons) Mathematics will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure	Annual review of curriculum/ program structures by AAB and BoS
5.Benchmarking Studies 5.1. List of Outcomes assessed by this Measure: POO2 : The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements. POO7 : Programme of Bachelor of Science (Hons) Mathematics will be continuously engaged in developing/ reviewing processes, policies and systems to achieve prestigious accreditations from various national, international bodies and ranking bodies	Benchmarking with 2-3 National / International Universities/ colleges of repute

6. Faculty and Staff Performance Reviews 6.1. List of Outcomes assessed by this Measure: POO1 : Programme of Bachelor of Science (Hons) Mathematics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students POO5 : The Programme of Bachelor of Science (Hons) Mathematics will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff	Feedback	
7. Placements Records of graduates 7.1. List of Outcomes assessed by this Measure: POO3 : Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge	80% students shall be placed	
Summary of Results from Implementing Measures of POOs:	**Performance Target Was…**	
	Met	**Not Met**
Students Satisfaction Surveys	Met	-
Exit Surveys	Met	-
Course Evaluations	Met	-
Curriculum/Program Reviews	Met	-
Benchmarking Studies	Met	-
Placements Records of Graduates	-	Not Met
Students Satisfaction Surveys	Met	-

5.3.6 Mapping of Assessment Measures to Operational Outcomes

Assessment Tools / Programme Operational Outcomes	Students Satisfaction Surveys	Exit Surveys	Course Evaluations	Curriculum/Program Reviews	Benchmarking Studies	Faculty and Staff Performance Reviews	Placements Records of graduate
POO1	✓	✓	✓	✓		✓	
POO2	✓	✓			✓		
POO3			✓	✓			✓
POO4		✓		✓			
POO5		✓				✓	
POO6		✓					
POO7					✓		
POO8	✓	✓					

5.4 Bachelor of Statistics

5.4.1 Programme Mission:

To provide education at undergraduate level in Statistical Sciences 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.

5.4.2 Bachelor's Level Programmes

Programme Name – B.Stat
Programme Educational Objectives
PEO1: The student will become educated citizens who, as chemists contribute by applying, ethically, their knowledge to the educational, scientific, cultural, social, technological and economic development of their societies and nation at large
PEO2: The student will demonstrate a combination of analytical, computational, and experimental knowledge and skills to make them competent to pursue higher studies
PEO3: The student will be able to communicate effectively the knowledge gained with originality and presentation skills and develops a practical hand in laboratory work
PEO4: The student will be able to demonstrate communication skills in English and Foreign language that enable them to effectively participate and contribute in both linguistic environments
PEO5: The student will value the importance of lifelong learning as demonstrated by pursuing postgraduate studies, being involved in higher studies, multidisciplinary approach, professional societies, or pursuing scientific advancement and success
PEO6: The student will contribute to society by ethical application of their specialized knowledge to the educational, scientific cultural, social, technological and economic development of the society and the country at large

5.4.3 Programme Learning Outcomes

PLO1 : The student will have the ability to apply the basic and fundamental knowledge and related skill-set.
PLO2 : The student will have the ability to identify, define and analyze scientific problems and identify or create processes to solve them Competently use appropriate field and laboratory methods and techniques for the study of advance scientific problems/challenges.
PLO3 : The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, charts, descriptive statistics, summary statistics etc. within a scientific environment. Ability to use and apply professional softwares for scientific data analysis.
PLO4 : The student will have the ability of Problem Solving in Statistics and related Science.
PLO5 : The student will have the ability to communicate statistical concept, principles and related procedure in an effective manner consistently with the end users and act as an interface between the service provider and end users.
PLO6 : The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings.
PLO7 : The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts. Interact effectively within a global team / learning / professional group, recognise, support or be proactive in problem solving and technical collaboration.
PLO8 : The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice.
PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and basic knowledge of the discipline to own start- ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues.
PLO10 : The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude.
PLO11 : The student will have the ability to demonstrate knowledge and understanding of the statistical principles, methods and procedure and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PLO12 : The student will have the ability to identify the impact of scientific knowledge and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

Assessment Instruments for Programme Learning Outcomes	**Performance Objectives (Targets/Criteria)**
Direct Measures:	
1. Behavioral Observations 1.1. List of Outcomes assessed by this Measure: PLO6 : The student will have the ability to function effectively as an individual, and as a	80% students should secure a grade 6 and above on a 10 point scale in a journal for success component of

member or leader in diverse teams in multidisciplinary settings	behaviuoral science course
2. Comprehensive Examination 2.1. List of Outcomes assessed by this Measure: PLO1 : The student will have the ability to apply the basic and fundamental knowledge and related skill-set PLO5 : The student will have the ability to communicate statistical concept, principles and related procedure in an effective manner consistently with the end users and act as an interface between the service provider and end users PLO6 : The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings PLO8 : The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice. PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and basic knowledge of the discipline to own start- ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues PLO10 : The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude PLO11 : The student will have the ability to demonstrate knowledge and understanding of the statistical principles, methods and procedure and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments PLO12 : The student will have the ability to identify the impact of scientific knowledge and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development	80% students shall pass the exam
3. Course-embedded assignments (Class Tests, Home Assignments, Quiz, Seminar, Term Paper, Presentations) 3.1. List of Outcomes assessed by this Measure: PLO2 : The student will have the ability to identify, define and analyze scientific problems and identify or create processes to solve them Competently use appropriate field and laboratory methods and techniques for the study of advance scientific problems/challenges PLO3 : The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, charts, descriptive statistics, summary statistics etc. within a scientific environment. Ability to use and apply professional softwares for scientific data analysis PLO4 : The student will have the ability of Problem Solving in Statistics and related Science PLO7 : The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts. Interact effectively within a global team / learning / professional group, recognise, support or be proactive in problem solving and technical collaboration. PLO8 : The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice. PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and basic knowledge of the discipline to own start- ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues	80% students shall pass the exam
4. Viva Voce 4.1. List of Outcomes assessed by this Measure: PLO1 : The student will have the ability to apply the basic and fundamental knowledge and related skill-set PLO8 : The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice. PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and basic knowledge of the discipline to own	80% students shall pass the exam

start- ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues	
5. Scoring Rubrics 5.1. List of Outcomes assessed by this Measure: PLO5 : The student will have the ability to communicate statistical concept, principles and related procedure in an effective manner consistently with the end users and act as an interface between the service provider and end users PLO6 : The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings PLO10 : The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude PLO11 : The student will have the ability to demonstrate knowledge and understanding of the statistical principles, methods and procedure and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments	100% students will undertake and complete the course
6. Plagiarism check 6.1. List of Outcomes assessed by this Measure: PLO8 : The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice. PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and basic knowledge of the discipline to own start- ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues	100% students are checked for plagiarism in NTCC report submissions and are allowed to appear for Viva –voce upon obtaining plagiarism % below 15%
Indirect Measures:	
1. Comprehensive Exam 1.1 List of Outcomes assessed by this Measure PLO2 : The student will have the ability to identify, define and analyze scientific problems and identify or create processes to solve them Competently use appropriate field and laboratory methods and techniques for the study of advance scientific problems/challenges PLO3 : The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, charts, descriptive statistics, summary statistics etc. within a scientific environment. Ability to use and apply professional softwares for scientific data analysis PLO8 : The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice. PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and basic knowledge of the discipline to own start- ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues	80% students response range between 4-5 on the likert scale in the survey
2. Exit Interviews 2.1 List of Outcomes assessed by this Measure: PLO1 : The student will have the ability to apply the basic and fundamental knowledge and related skill-set PLO4 : The student will have the ability of Problem Solving in Statistics and related Science PLO5 : The student will have the ability to communicate statistical concept, principles and related procedure in an effective manner consistently with the end users and act as an interface between the service provider and end users PLO6 : The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings PLO7 : The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts. Interact effectively within a global team / learning / professional group, recognise, support or be proactive in problem solving and technical collaboration.	80% students should have response more than 75% in Student Exit Survey

PLO8 : The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice. PLO9 : The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and basic knowledge of the discipline to own start- ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues PLO10 : The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude PLO11 : The student will have the ability to demonstrate knowledge and understanding of the statistical principles, methods and procedure and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments PLO12 : The student will have the ability to identify the impact of scientific knowledge and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development	

Summary of Results from Implementing Direct Measures of PLOs:	**Performance Target Was…**	
	Met	**Not Met**
Behavioral Observations	Met	-
comprehensive exam	Met	-
Course-embedded assignments (e.g. Class Tests, Home Assignments, Quiz, Seminar, Term Paper , Presentations)	Met	-
Viva Voce	Met	-
Scoring Rubrics	Met	-
Plagiarism check	Met	-

Summary of Results from Implementing Indirect Measures of PLOs:	**Performance Target Was…**	
	Met	**Not Met**
Comprehensive Exam	Met	-
Exit interviews	Met	-

5.4.4 Mapping of Assessment Measures to Intended Student Learning Outcomes

Assessment Tools / Programme Learning Outcomes	Direct			Indirect		
	Comprehensive Examination	**Scoring Rubrics**		**Exit Interviews**	**Industry Guide Feedback**	**Alumni Surveys**
PLO1	✓			✓		✓
PLO2					✓	
PLO3					✓	
PLO4				✓		✓
PLO5	✓	✓		✓		✓
PLO6	✓	✓		✓		✓
PLO7				✓		✓
PLO8	✓			✓	✓	
PLO9	✓			✓	✓	
PLO10	✓	✓		✓		✓
PLO11	✓	✓		✓		✓
PLO12	✓			✓		✓

5.4.5 Assessment Of Programme Operational Outcomes

Bachelor's Level Programmes

Programme Name – B.Stat
Programme Operational Objectives
Create appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students
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
Demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
Continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
Continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.
Arrange all necessary support system for the students to facilitate campus recruitment, higher education or starting their own ventures.
Act ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
Create opportunities for international exposure for its students and faculty.
Programme Operational Outcomes
POO1 : Programme of Bachelor of Statistics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students.
POO2 : The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements.
POO3 : Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge.
POO4 : Programme Bachelor of Statistics will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure.
POO5 : The Programme of Bachelor of Statistics will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff.
POO6 : Programme of Bachelor of Statistics will develop and maintain strong relationship with corporate and support all the students for quality placements or join family business or start their own venture.
POO7 : Programme of Bachelor of Statistics will be continuously engaged in developing/ reviewing processes, policies and systems to achieve prestigious accreditations from various national, international bodies and ranking bodies.
POO8 : The students of Bachelor of Statistics will graduate in timely manner & prepare for higher

education.

Assessment Instruments for Programme Operational Outcomes	Performance Objectives (Targets/Criteria)
1. Student Satisfaction Surveys 1.1. List of Outcomes assessed by this Measure: POO1 : Programme of Bachelor of Statistics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students POO2 : The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements POO8 : The students of Bachelor of Statistics will graduate in timely manner & prepare for higher education	80% students response range between 3-5 on the likert scale in the survey
4. Exit Surveys 2.3 List of Outcomes assessed by this Measure: POO1 : Programme of Bachelor of Statistics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students POO2 : The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements POO4 : Programme Bachelor of Statistics will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure POO5 : The Programme of Bachelor of Statistics will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff POO6 : Programme of Bachelor of Statistics will develop and maintain strong relationship with corporate and support all the students for quality placements or join family business or start their own venture POO8 : The students of Bachelor of Statistics will graduate in timely manner & prepare for higher education	80% students should have response more than 75% in Student Exit Survey
3. Course Evaluations 3.1. List of Outcomes assessed by this Measure: POO1 : Programme of Bachelor of Statistics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students POO3 : Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge	80% students shall meet the pass criteria in course evaluation
4. Curriculum/Program Reviews 4.1. List of Outcomes assessed by this Measure: POO1 : Programme of Bachelor of Statistics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students POO3 : Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge POO4 : Programme Bachelor of Statistics will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure	Annual review of curriculum/ program structures by AAB and BoS
5.Benchmarking Studies 5.1. List of Outcomes assessed by this Measure: POO2 : The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements POO7 : Programme of Bachelor of Statistics will be continuously engaged in developing/ reviewing processes, policies and systems to achieve prestigious accreditations from various national, international bodies and ranking bodies	Benchmarking with 2-3 National / International Universities/ colleges of repute

6. Faculty and Staff Performance Reviews 6.1. List of Outcomes assessed by this Measure: POO1 : Programme of Bachelor of Statistics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students POO5 : The Programme of Bachelor of Statistics will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff	Feedback	
7. Placements Records of graduates 7.1. List of Outcomes assessed by this Measure: POO3 : Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge	80% students shall be placed	
Summary of Results from Implementing Measures of POOs:	**Performance Target Was…**	
	Met	**Not Met**
Students Satisfaction Surveys	Met	-
Exit Surveys	Met	-
Course Evaluations	Met	-
Curriculum/Program Reviews	Met	-
Benchmarking Studies	Met	-
Placements Records of Graduates	-	Not Met
Students Satisfaction Surveys	Met	-

5.4.6 Mapping of Assessment Measures to Operational Outcomes

Assessment Tools / Programme Operational Outcomes	Students Satisfaction Surveys	Exit Surveys	Course Evaluations	Curriculum/Program Reviews	Benchmarking Studies	Faculty and Staff Performance Reviews	Placements Records of graduate
POO1	✓	✓	✓	✓		✓	
POO2	✓	✓			✓		
POO3			✓	✓			✓
POO4		✓		✓			
POO5		✓				✓	
POO6		✓					
POO7					✓		
POO8	✓	✓					

5.5 Master of Science (Applied Chemistry)

5.5.1 Programme Mission:

To provide education at postgraduate level in Chemical Sciences & 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 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.

5.5.2 Programme Educational Objectives

Programme Name – M.Sc. (Applied Chemistry)
PEO1: The student will become educated citizens who, as chemists contribute by applying, ethically, their knowledge to the educational, scientific, cultural, social, technological and economic development of their societies and nation at large
PEO2: The student will demonstrate a combination of analytical, computational, and experimental knowledge and skills to make them competent to pursue higher studies
PEO3: The student will be able to communicate effectively the knowledge gained with originality and presentation skills and develops a practical hand in laboratory work
PEO4: The student will be able to demonstrate communication skills in English and Foreign language that enable them to effectively participate and contribute in both linguistic environments
PEO5: The student will value the importance of lifelong learning as demonstrated by pursuing postgraduate studies, being involved in higher studies, multidisciplinary approach, professional societies, or pursuing scientific advancement and success
PEO6: The student will contribute to society by ethical application of their specialized knowledge to the educational, scientific cultural, social, technological and economic development of the society and the country at large

5.5.3 Programme Learning Outcomes(PLOs)

PLO 1	The student will have the ability to apply knowledge of the major areas of inorganic, organic and physical chemistry including a wide range of factual information and experimentally observed phenomena and the historical development and current application of derived theoretical and mechanistic concepts.
PLO 2	The student will have the ability to retrieve, critically evaluate and present information in an appropriate format from the chemical literature.
PLO 3	The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations related to Chemistry.
PLO 4	The student will have the ability to solve unseen chemical problems, both qualitative and quantitative, by interpretation and manipulation of experimental data.
PLO 5	The student will have the ability to communicate effectively on complex activities with the Scientific community in the area of chemistry and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, make effective presentations, and give and receive clear instructions
PLO 6	The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings.
PLO 7	The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts.
PLO 8	The student will have the ability to apply ethical principles and demonstrate professional ethics and responsibilities and norms of the Science & Technology practice related to Chemical sciences.
PLO 9	The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start-ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues.
PLO 10	The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude.
PLO 11	The student will have the ability to assimilate and integrate knowledge gained in the course of different modules throughout the various years of study and to apply this when required
PLO 12	The student will have the ability to identify the impact of scientific knowledge in the field of Chemistry and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

Assessment Instruments for Programme Learning Outcomes	**Performance Objectives (Targets/Criteria)**

Direct Measures:	
1. Comprehensive Examination 1.1. List of Outcomes assessed by this Measure: i. PLO1: The student will have the ability to apply knowledge of the major areas of inorganic, organic and physical chemistry including a wide range of factual information and experimentally observed phenomena and the historical development and current application of derived theoretical and mechanistic concepts. ii. PLO2:The student will have the ability to retrieve, critically evaluate and present information in an appropriate format from the chemical literature. iii. PLO3:The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations related to Chemistry. iv. PLO4:The student will have the ability to solve unseen chemical problems, both qualitative and quantitative, by interpretation and manipulation of experimental data. v. PLO6: The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings. vi. PLO 7: The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts. vii. PLO8: The student will have the ability to apply ethical principles and demonstrate professional ethics and responsibilities and norms of the Science & Technology practice related to Chemical sciences. viii. PLO9: The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start-ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues ix. PLO10: The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. x. PLO11: The student will have the ability to assimilate and integrate knowledge gained in the course of different modules throughout the various years of study and to apply this when required xi. PLO12: The student will have the ability to identify the impact of scientific knowledge in the field of Chemistry and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development	80% students shall pass the exam
1. Scoring Rubrics List of Outcomes assessed by this Measure: i. PLO5: The student will have the ability to communicate effectively on complex activities with the Scientific community in the area of chemistry and with society at large, such as, being able to comprehend and write effective reports, research papers and design documentation, make effective presentations, and give and receive clear instructions ii. PLO6: The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings. iii. PLO10: The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. iv. PLO11: The student will have the ability to assimilate and integrate knowledge gained in the course of different modules throughout the various years of study and to apply this when required v. PLO12: The student will have the ability to identify the impact of scientific knowledge in the field of Chemistry and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development	50% students should secure a grade of 6 and above on a 10 point scale.
Indirect Measures:	
1. Exit Interviews 1.1 List of Outcomes assessed by this Measure: i. PLO1: The student will have the ability to apply knowledge of the major areas of inorganic, organic and physical chemistry including a wide range of factual information and experimentally observed phenomena and the historical development and current application of derived theoretical and mechanistic concepts. ii. PLO4: The student will have the ability to solve unseen chemical problems, both qualitative and quantitative,	80% students should have response more than 75% in Student Exit Survey

by interpretation and manipulation of experimental data. iii. PLO5: The student will have the ability to communicate effectively on complex activities with the Scientific community in the area of chemistry and with society at large, such as, being able to comprehend and write effective reports, research papers and design documentation, make effective presentations, and give and receive clear instructions iv. PLO6: The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings. v. PLO7: The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts vi. PLO8: The student will have the ability to apply ethical principles and demonstrate professional ethics and responsibilities and norms of the Science & Technology practice related to Chemical sciences. vii. PLO9: The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start-ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues viii. PLO10: The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. ix. PLO11: The student will have the ability to assimilate and integrate knowledge gained in the course of different modules throughout the various years of study and to apply this when required x. PLO12: The student will have the ability to identify the impact of scientific knowledge in the field of Chemistry and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development	
2. Industry Guide Feedback: 2.1 List of Outcomes assessed by this Measure: i. PLO2: The student will have the ability to retrieve, critically evaluate and present information in an appropriate format from the chemical literature. ii. PLO3: The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations related to Chemistry. iii. PLO8: The student will have the ability to apply ethical principles and demonstrate professional ethics and responsibilities and norms of the Science & Technology practice related to Chemical sciences. iv. PLO9: The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start-ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues	Student should obtain 7 or above on likert's scale in industry feedback.
3. Alumni Surveys 3.1 List of Outcomes assessed by this Measure: i. PLO1: The student will have the ability to apply knowledge of the major areas of inorganic, organic and physical chemistry including a wide range of factual information and experimentally observed phenomena and the historical development and current application of derived theoretical and mechanistic concepts. ii. PLO4: The student will have the ability to solve unseen chemical problems, both qualitative and quantitative, by interpretation and manipulation of experimental data. iii. PLO5: The student will have the ability to communicate effectively on complex activities with the Scientific community in the area of chemistry and with society at large, such as, being able to comprehend and write effective reports, research papers and design documentation, make effective presentations, and give and receive clear instructions iv. PLO6: The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings. v. PLO7: The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts vi. PLO10: The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. vii. PLO11: The student will have the ability to assimilate and integrate knowledge gained in the course of different modules throughout the various years of study and to apply this when required viii. PLO12: The student will have the ability to identify the impact of scientific knowledge in the field of Chemistry and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development	80% of students reponse range between 3-5 on the likert scale in the student Alumni survey.
Summary of Results from Implementing Direct Measures of PLOs:	**Performance Target Was…**

	Met	Not Met
Comprehensive Exam	Met	
Scoring Rubrics	Met	-
Summary of Results from Implementing Indirect Measures of PLOs:	Performance Target Was…	
	Met	Not Met
Exit interviews	Met	
Industry Guide Feedback	Met	
Alumni Survey	Met	

5.5.4 Mapping of Assessment Measures to Intended Student Learning Outcomes

Assessment Tools / Programme Learning Outcomes	Direct			Indirect		
	Comprehensive Examination	**Scoring Rubrics**		**Exit Interviews**	**Industry Guide Feedback**	**Alumni Surveys**
PLO1	✓			✓		✓
PLO2					✓	
PLO3					✓	
PLO4				✓		✓
PLO5	✓	✓		✓		✓
PLO6	✓	✓		✓		✓
PLO7				✓		✓
PLO8	✓			✓	✓	
PLO9	✓			✓	✓	
PLO10	✓	✓		✓		✓
PLO11	✓	✓		✓		✓
PLO12	✓			✓		✓

5.5.5 Assessment Of Programme Operational Outcomes

Master's Level Programmes

Programme Operational Objectives (POOs)

Programme of Master of Science (Applied Chemistry) will
Create appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students
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
Demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
Continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
Continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.
Arrange all necessary support system for the students to facilitate campus recruitment, higher education or starting their own ventures.
Act ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
Create opportunities for international exposure for its students and faculty.

Programme Operational Outcomes

	Programme Operational Outcomes
POO1	Programme of Master of Science (Applied Chemistry)will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students.
POO 2	The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements.
POO 3	Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge.
POO 4	Programme of Master of Science (Applied Chemistry) will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure.
POO 5	The Programme of Master of Science (Applied Chemistry) will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff.

POO 6	Programme of Master of Science (Applied Chemistry) will develop and maintain strong relationship with corporate and support all the students for quality placements or join family business or start their own venture.
POO 7	Programme of Master of Science (Applied Chemistry) will be continuously engaged in developing/ reviewing processes, policies and systems to achieve prestigious accreditations from various national, international bodies and ranking bodies.
POO 8	The students of Master of Science (Applied Chemistry) will graduate in timely manner & prepare for higher education.

Assessment Instruments for Programme Operational Outcomes	**Performance Objectives (Targets/Criteria)**
1. Student Satisfaction Surveys 1.1. List of Outcomes assessed by this Measure: i. POO1: Programme of Master of Science (Applied Chemistry)will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students. ii. POO2: The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements iii. POO8	80% students response range between 3-5 on the likert scale in the survey
5. Exit Surveys 2.4 List of Outcomes assessed by this Measure: i. POO1: Programme of Master of Science (Applied Chemistry)will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students. ii. POO2: The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements iii. POO4: Programme of Master of Science (Applied Chemistry) will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure iv. POO5: The Programme of Master of Science (Applied Chemistry) will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff. v. POO6: Programme of Master of Science (Applied Chemistry) will develop and maintain strong relationship with corporate and support all the students for quality placements or join family business or start their own venture vi. POO8: The students of Master of Science (Applied Chemistry) will graduate in timely manner & prepare for higher education	80% students should have response more than 75% in Student Exit Survey
3. Course Evaluations 3.1. List of Outcomes assessed by this Measure: i. POO1: Programme of Master of Science (Applied Chemistry)will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students. ii. POO3: Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge.	80% students shall meet the pass criteria in course evaluation
4. Curriculum/Program Reviews 4.1. List of Outcomes assessed by this Measure: i. POO1: Programme of Master of Science (Applied Chemistry)will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students. ii. POO3: Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge. iii. POO4: Programme of Master of Science (Applied Chemistry) will facilitate joint	Annual review of curriculum/ program structures by AAB and BoS

research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure	
5.Benchmarking Studies 5.1. List of Outcomes assessed by this Measure: i. POO2: The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements ii. POO7: Programme of Master of Science (Applied Chemistry) will be continuously engaged in developing/ reviewing processes, policies and systems to achieve prestigious accreditations from various national, international bodies and ranking bodies	Benchmarking with 2-3 National / International Universities/ colleges of repute
6. Faculty and Staff Performance Reviews 6.1. List of Outcomes assessed by this Measure: i. POO1: Programme of Master of Science (Applied Chemistry)will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students. ii. POO5: The Programme of Master of Science (Applied Chemistry) will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff.	Feedback
7. Placements Records of graduates 7.1. List of Outcomes assessed by this Measure: i. POO3: Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge.	80% students shall be placed

Summary of Results from Implementing Measures of POOs:	**Performance Target Was…**	
	Met	**Not Met**
Students Satisfaction Surveys	Met	-
Exit Surveys	Met	-
Course Evaluations	Met	-
Curriculum/Program Reviews	Met	-
Benchmarking Studies	Met	-
Placements Records of Graduates	-	Not Met
Students Satisfaction Surveys	Met	-

5.5.6 Mapping of Assessment Measures to Operational Outcomes

Assessment Tools / Programme Operational Outcomes	Students Satisfaction Surveys	Exit Surveys	Course Evaluations	Curriculum/Program Reviews	Benchmarking Studies	Faculty and Staff Performance Reviews	Placements Records of graduate
POO1	✓	✓	✓	✓		✓	
POO2	✓	✓			✓		
POO3			✓	✓			✓
POO4		✓		✓			
POO5		✓				✓	
POO6		✓					
POO7					✓		
POO8	✓	✓					

5.6 Master of Science (Applied Mathematics)

5.6.1 Programme Mission

To provide education at post graduate (PG) level in Mathematical Sciences & 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 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

5.6.2 Programme Educational Objectives

Programme Name – M.Sc. (Applied Mathematics)
Programme Educational Objectives
PEO1: The student will become educated citizens who, as chemists contribute by applying, ethically, their knowledge to the educational, scientific, cultural, social, technological and economic development of their societies and nation at large
PEO2: The student will demonstrate a combination of analytical, computational, and experimental knowledge and skills to make them competent to pursue higher studies
PEO3: The student will be able to communicate effectively the knowledge gained with originality and presentation skills and develops a practical hand in laboratory work
PEO4: The student will be able to demonstrate communication skills in English and Foreign language that enable them to effectively participate and contribute in both linguistic environments
PEO5: The student will value the importance of lifelong learning as demonstrated by pursuing postgraduate studies, being involved in higher studies, multidisciplinary approach, professional societies, or pursuing scientific advancement and success
PEO6: The student will contribute to society by ethical application of their specialized knowledge to the educational, scientific cultural, social, technological and economic development of the society and the country at large

5.6.3 Programme Learning Outcomes

PLO 1	The student will have the ability to apply the knowledge of mathematical sciences, their fundamentals and specialization to the solution of complex Science problems.
PLO 2	The student will have the ability to identify, define and analyze scientific problems and identify or create processes to solve them Competently use appropriate field and techniques for the study of advance scientific problems/challenges.
PLO 3	The student will have the ability to use a confident familiarity with a broad range of appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations within a scientific environment. Ability to use and apply professional software for scientific data analysis
PLO 4	The student will have the ability to use and apply core scientific principles and techniques to facilitate problem solving in Scientific fields. Ability to respond effectively to unfamiliar problems in scientific contexts
PLO 5	The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, make effective presentations, and give and receive clear instructions
PLO 6	The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings.
PLO 7	The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts . Interact effectively within a global team / learning / professional group, recognize, support or be proactive in research and technical collaboration.
PLO 8	The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice.
PLO 9	The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues.
PLO 10	The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude.
PLO 11	The student will have the ability to demonstrate knowledge and understanding of the Scientific principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments
PLO 12	The student will have the ability to identify the impact of scientific knowledge and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

Assessment Instruments for Programme Learning Outcomes	Performance Objectives (Targets/Criteria)
Direct Measures:	
1. Comprehensive Examination 1.1. List of Outcomes assessed by this Measure: xii. PLO1: The student will have the ability to apply the knowledge of mathematical sciences, their fundamentals and specialization to the solution of complex Science problems xiii. PLO5: The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, make effective presentations, and give and receive clear instructions xiv. PLO6: The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings. xv. PLO8: The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice xvi. PLO9: The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues xvii. PLO10: The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. xviii. PLO11: The student will have the ability to demonstrate knowledge and understanding of the Scientific principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments xix. PLO12: The student will have the ability to identify the impact of scientific knowledge and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.	80% students shall pass the exam
2. Viva Voce 2.1. List of Outcomes assessed by this Measure: i. PLO1: The student will have the ability to apply the knowledge of mathematical sciences, their fundamentals and specialization to the solution of complex Science problems	80% students shall pass the exam
3. Course-embedded assignments 3.1. List of Outcomes assessed by this Measure: i. PLO2: The student will have the ability to identify, define and analyze scientific problems and identify or create processes to solve them Competently use appropriate field and techniques for the study of advance scientific problems/challenges ii. PLO3: The student will have the ability to use a confident familiarity with a broad range of appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations within a scientific environment. Ability to use and apply professional software for scientific data analysis	100% students will undertake and complete the course
4. Practical / Internship evaluations 4.1. List of Outcomes assessed by this Measure: i. PLO2: The student will have the ability to identify, define and analyze scientific problems and identify or create processes to solve them Competently use appropriate field and techniques for the study of advance scientific problems/challenges ii. PLO3: The student will have the ability to use a confident familiarity with a broad range of appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations within a scientific environment. Ability to use and apply professional software for scientific data analysis	100% students will undertake and complete the course
5. Thesis or Dissertation Projects 5.1. List of Outcomes assessed by this Measure: i. PLO2: The student will have the ability to identify, define and analyze scientific problems and identify or create processes to solve them Competently use appropriate field and techniques for the study of advance scientific problems/challenges	100% students will undertake and complete the course

ii. PLO3: The student will have the ability to use a confident familiarity with a broad range of appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations within a scientific environment. Ability to use and apply professional software for scientific data analysis iii. PLO4: The student will have the ability to use and apply core scientific principles and techniques to facilitate problem solving in Scientific fields. Ability to respond effectively to unfamiliar problems in scientific contexts iv. PLO7: The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts . Interact effectively within a global team / learning / professional group, recognize, support or be proactive in research and technical collaboration.	
6. Behavioral Observations 6.1. List of Outcomes assessed by this Measure: i. PLO6: The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings. ii. PLO7: The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts . Interact effectively within a global team / learning / professional group, recognize, support or be proactive in research and technical collaboration.	80% students should secure a grade 6 and above on a 10 point scale in a journal for success componentof behavioural science course.
7. Plagiarism check 7.1. List of Outcomes assessed by this Measure: i. PLO8: The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice	100% students are checked for plagiarism in NTCC report submissions and are allowed to appear for Viva –voce upon obtaining plagiarism % below 15%
8. Scoring Rubrics 8.1. List of Outcomes assessed by this Measure: vi. PLO5: The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, make effective presentations, and give and receive clear instructions vii. PLO6: The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings. viii. PLO10: The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. ix. PLO11: The student will have the ability to demonstrate knowledge and understanding of the Scientific principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments	50% students should secure a grade of 6 and above on a 10 point scale.
Indirect Measures:	
1. Comprehensive Exam 1.1 List of Outcomes assessed by this Measure: xi. PLO1: The student will have the ability to apply the knowledge of mathematical sciences, their fundamentals and specialization to the solution of complex Science problems xii. PLO2: The student will have the ability to identify, define and analyze scientific problems and identify or create processes to solve them Competently use appropriate field and techniques for the study of advance scientific problems/challenges xiii. PLO3: The student will have the ability to use a confident familiarity with a broad range of appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations within a scientific environment. Ability to use and apply professional software for scientific data analysis xiv. PLO4: The student will have the ability to use and apply core scientific principles and techniques to facilitate problem solving in Scientific fields. Ability to respond effectively to unfamiliar problems in scientific contexts xv. PLO5: The student will have the ability to communicate effectively on complex activities with the	80% students response range between 4-5 on the likert scale in the survey

Scientific community and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, make effective presentations, and give and receive clear instructions xvi. PLO6: The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings. xvii. PLO7: The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts . Interact effectively within a global team / learning / professional group, recognize, support or be proactive in research and technical collaboration. xviii. PLO8: The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice	
2. Exit Interviews 2.1 List of Outcomes assessed by this Measure: xix. PLO1: The student will have the ability to apply the knowledge of mathematical sciences, their fundamentals and specialization to the solution of complex Science problems xx. PLO4: The student will have the ability to use and apply core scientific principles and techniques to facilitate problem solving in Scientific fields. Ability to respond effectively to unfamiliar problems in scientific contexts xxi. PLO5: The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, make effective presentations, and give and receive clear instructions xxii. PLO6: The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings. xxiii. PLO7: The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts . Interact effectively within a global team / learning / professional group, recognize, support or be proactive in research and technical collaboration. xxiv. PLO8: The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice xxv. PLO9: The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues xxvi. PLO10: The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. xxvii. PLO11: The student will have the ability to demonstrate knowledge and understanding of the Scientific principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments xxviii. PLO12: The student will have the ability to identify the impact of scientific knowledge and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.	80% students should have response more than 75% in Student Exit Survey
3. External Reviewers 3.1 List of Outcomes assessed by this Measure: v. PLO2: The student will have the ability to identify, define and analyze scientific problems and identify or create processes to solve them Competently use appropriate field and techniques for the study of advance scientific problems/challenges vi. PLO3: The student will have the ability to use a confident familiarity with a broad range of appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations within a scientific environment. Ability to use and apply professional software for scientific data analysis vii. PLO8: The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice viii. PLO9: The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own start ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues	Student should obtain 7 or above on likert's scale in industry feedback.
4. Alumni Surveys 4.1 List of Outcomes assessed by this Measure:	80% of students reponse range between 3-5 on

ix. PLO1: The student will have the ability to apply the knowledge of mathematical sciences, their fundamentals and specialization to the solution of complex Science problems x. PLO4: The student will have the ability to use and apply core scientific principles and techniques to facilitate problem solving in Scientific fields. Ability to respond effectively to unfamiliar problems in scientific contexts xi. PLO5: The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, make effective presentations, and give and receive clear instructions xii. PLO6: The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings. xiii. PLO7: The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts . Interact effectively within a global team / learning / professional group, recognize, support or be proactive in research and technical collaboration. xiv. PLO10: The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. xv. PLO11: The student will have the ability to demonstrate knowledge and understanding of the Scientific principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments xvi. PLO12: The student will have the ability to identify the impact of scientific knowledge and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.	the likert scale in the student Alumni survey.

Summary of Results from Implementing Direct Measures of PLOs:	**Performance Target Was…**	
	Met	**Not Met**
Course Assesment	Met	-
Viva Voce	Met	-
Course-embedded assignments (e.g. Class Tests, Home Assignments, Quiz, Seminar, Term Paper , Presentations)	Met	-
Practical / Internship evaluations	Met	-
Thesis or Dissertation Projects	Met	-
Behavioral Observations	Met	-
Plagiarism check	Met	-
Scoring Rubrics	Met	-
Summary of Results from Implementing Indirect Measures of PLOs:	Performance Target Was…	
	Met	Not Met
Comprehensive Exam	Met	
Exit interviews	Met	
External Reviewers	Met	
Alumni Survey	Met	

5.6.4 Mapping of Assessment Measures to Intended Student Learning Outcomes

Assessment Tools / Programme Learning Outcomes	Direct			Indirect		
	Comprehensive Examination	Scoring Rubrics		Exit Interviews	Industry Guide Feedback	Alumni Surveys
PLO1	✓			✓		✓
PLO2					✓	
PLO3					✓	
PLO4				✓		✓
PLO5	✓	✓		✓		✓
PLO6	✓	✓		✓		✓
PLO7				✓		✓
PLO8	✓			✓	✓	
PLO9	✓			✓	✓	
PLO10	✓	✓		✓		✓
PLO11	✓	✓		✓		✓
PLO12	✓			✓		✓

5.6.5 Assessment Of Programme Operational Outcomes

Master's Level Programmes

Programme Name – M.Sc. (Applied Mathematics)
Programme Operational Objectives/ Goals
Create appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students
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
Demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.

Continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
Continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.
Arrange all necessary support system for the students to facilitate campus recruitment, higher education or starting their own ventures.
Act ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
Create opportunities for international exposure for its students and faculty.

Programme Operational Outcomes	
POO1	Programme of Master of Science (Applied Mathematics) will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students.
POO 2	The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements.
POO 3	Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge.
POO 4	Programme of Master of Science (Applied Mathematics) will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure.
POO 5	The Programme of Master of Science (Applied Mathematics) will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff.
POO 6	Programme of Master of Science (Applied Mathematics) will develop and maintain strong relationship with corporate and support all the students for quality placements or join family business or start their own venture.
POO 7	Programme of Master s of Science (Applied Mathematics) will be continuously engaged in developing/ reviewing processes, policies and systems to achieve prestigious accreditations from various national, international bodies and ranking bodies.
POO 8	The students of Master of Science (Applied Mathematics) will graduate in timely manner & prepare for higher education.

Assessment Instruments for Programme Operational Outcomes	**Performance Objectives (Targets/Criteria)**
1. Student Satisfaction Surveys 1.1. List of Outcomes assessed by this Measure: iv. POO1: Programme of Master of Science (Applied Mathematics) will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students v. POO2: The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements	80% students response range between 3-5 on the likert scale in the survey

vi. POO8: The students of Master of Science (Applied Mathematics) will graduate in timely manner & prepare for higher education	
6. Exit Surveys 2.5 List of Outcomes assessed by this Measure: vii. POO1: Programme of Master of Science (Applied Mathematics) will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students viii. POO2: The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements ix. POO4: Programme of Master of Science (Applied Mathematics) will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure x. POO5: The Programme of Master of Science (Applied Mathematics) will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff xi. POO6: Programme of Master of Science (Applied Mathematics) will develop and maintain strong relationship with corporate and support all the students for quality placements or join family business or start their own venture xii. POO8: The students of Master of Science (Applied Mathematics) will graduate in timely manner & prepare for higher education	80% students should have response more than 75% in Student Exit Survey
3. Course Evaluations 3.1. List of Outcomes assessed by this Measure: iii. POO1: Programme of Master of Science (Applied Mathematics) will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students iv. POO3: Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge	80% students shall meet the pass criteria in course evaluation
4. Curriculum/Program Reviews 4.1. List of Outcomes assessed by this Measure: iv. POO1: Programme of Master of Science (Applied Mathematics) will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students v. POO3: Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge vi. POO4: Programme of Master of Science (Applied Mathematics) will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure	Annual review of curriculum/ program structures by AAB and BoS
5.Benchmarking Studies 5.1. List of Outcomes assessed by this Measure: iii. POO2: The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements iv. POO7: Programme of Master s of Science (Applied Mathematics) will be continuously engaged in developing/ reviewing processes, policies and systems to achieve prestigious accreditations from various national, international bodies and ranking bodies	Benchmarking with 2-3 National / International Universities/ colleges of repute
6. Faculty and Staff Performance Reviews 6.1. List of Outcomes assessed by this Measure: iii. POO1: Programme of Master of Science (Applied Mathematics) will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students iv. POO5: The Programme of Master of Science (Applied Mathematics) will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff	Feedback

7. Placements Records of graduates 7.1. List of Outcomes assessed by this Measure: ii. POO3: Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge	80% students shall be placed	
Summary of Results from Implementing Measures of POOs:	**Performance Target Was…**	
	Met	**Not Met**
Students Satisfaction Surveys	Met	-
Exit Surveys	Met	-
Course Evaluations	Met	-
Curriculum/Program Reviews	Met	-
Benchmarking Studies	Met	-
Placements Records of Graduates	-	Not Met
Students Satisfaction Surveys	Met	-

5.6.6 Mapping of Assessment Measures to Operational Outcomes

Assessment Tools / Programme Operational Outcomes	**Students Satisfaction Surveys**	**Exit Surveys**	**Course Evaluations**	**Curriculum/Program Reviews**	**Benchmarking Studies**	**Faculty and Staff Performance Reviews**	**Placements Records of graduate**
POO1	✓	✓	✓	✓		✓	
POO2	✓	✓			✓		
POO3			✓	✓			✓
POO4		✓		✓			
POO5		✓				✓	
POO6		✓					
POO7					✓		
POO8	✓	✓					

5.7 Master of Science (Applied Physics)

5.7.1 Programme Mission:

To provide education at postgraduate level in Physical Sciences & 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 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.

5.7.2 Programme Educational Objectives

Programme Name – M.Sc. (Applied Physics)
Programme Educational Objectives
PEO1: The student will become educated citizens who, as Physicist contribute by applying, ethically, their knowledge to the educational, scientific, cultural, social, technological and economic development of their societies and nation at large
PEO2: The student will demonstrate a combination of analytical, computational, and experimental knowledge and skills to make them competent to pursue higher studies
PEO3: The student will be able to communicate effectively the knowledge gained with originality and presentation skills and develops a practical hand in laboratory work
PEO4: The student will be able to demonstrate communication skills in English and Foreign language that enable them to effectively participate and contribute in both linguistic environments
PEO5: The student will value the importance of lifelong learning as demonstrated by pursuing postgraduate studies, being involved in higher studies, multidisciplinary approach, professional societies, or pursuing scientific advancement and success
PEO6: The student will contribute to society by ethical application of their specialized knowledge to the educational, scientific cultural, social, technological and economic development of the society and the country at large

5.7.3 Programme Learning Outcomes

PLO 1	The student will have the ability to apply knowledge, skills and attitudes appropriate to the physical sciences, their fundamentals and specialization to the solution of complex Science problems.
PLO 2	The student will have the ability to retrieve, critically evaluate and present information in an appropriate format from the Physical literature.
PLO 3	The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations related to Physics.
PLO 4	The student will have the ability to respond effectively to unfamiliar problems in scientific contexts
PLO 5	The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations, and receive clear instructions. To demonstrate effective communication in oral and written and utilize information effectively.
PLO 6	The student will have the ability to work both autonomously and collaboratively and to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings.
PLO 7	The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts . Interact effectively within a global team / learning / professional group, recognize, support or be proactive in research and technical collaboration.
PLO 8	The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice related to Physical sciences.
PLO 9	The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own startups or professional practice.
PLO 10	The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude.
PLO 11	The student will have the ability to assimilate and integrate knowledge gained in the course of different modules throughout the various years of study and to apply this when required
PLO 12	The student will have the ability to identify the impact of scientific knowledge in the field of Physics and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development

Assessment Instruments for Programme Learning Outcomes	**Performance Objectives (Targets/Criteria)**
Direct Measures:	

1. Comprehensive Examination 1.1. List of Outcomes assessed by this Measure: xx. PLO1: The student will have the ability to apply knowledge, skills and attitudes appropriate to the physical sciences, their fundamentals and specialization to the solution of complex Science problems xxi. PLO5: The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations, and receive clear instructions. To demonstrate effective communication in oral and written and utilize information effectively xxii. PLO6: The student will have the ability to work both autonomously and collaboratively and to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings xxiii. PLO8: The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice related to Physical sciences xxiv. PLO9: The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own startups or professional practice xxv. PLO10: The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude xxvi. PLO11: The student will have the ability to assimilate and integrate knowledge gained in the course of different modules throughout the various years of study and to apply this when required xxvii. PLO12: The student will have the ability to identify the impact of scientific knowledge in the field of Physics and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development	80% students shall pass the exam
2. Viva Voce 2.1. List of Outcomes assessed by this Measure: ii. PLO1: The student will have the ability to apply knowledge, skills and attitudes appropriate to the physical sciences, their fundamentals and specialization to the solution of complex Science problems	80% students shall pass the exam
3. Course-embedded assignments 3.1. List of Outcomes assessed by this Measure: iii. PLO2: The student will have the ability to retrieve, critically evaluate and present information in an appropriate format from the Physical literature iv. PLO3: The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations related to Physics	100% students will undertake and complete the course
4. Practical / Internship evaluations 4.1. List of Outcomes assessed by this Measure: iii. PLO2: The student will have the ability to retrieve, critically evaluate and present information in an appropriate format from the Physical literature iv. PLO3: The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations related to Physics	100% students will undertake and complete the course
5. Thesis or Dissertation Projects 5.1. List of Outcomes assessed by this Measure: v. PLO2: The student will have the ability to retrieve, critically evaluate and present information in an appropriate format from the Physical literature vi. PLO3: The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations related to Physics vii. PLO4 : The student will have the ability to respond effectively to unfamiliar problems in scientific contexts viii. PLO7: The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts . Interact effectively within a global team / learning / professional group, recognize, support or be proactive in research and technical collaboration	100% students will undertake and complete the course

6. Behavioral Observations 6.1. List of Outcomes assessed by this Measure: iii. PLO6: The student will have the ability to work both autonomously and collaboratively and to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings iv. PLO7: The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts . Interact effectively within a global team / learning / professional group, recognize, support or be proactive in research and technical collaboration	80% students should secure a grade 6 and above on a 10 point scale in a journal for success componentof behavioural science course.
7. Plagiarism check 7.1. List of Outcomes assessed by this Measure: ii. PLO8: The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice related to Physical sciences	100% students are checked for plagiarism in NTCC report submissions and are allowed to appear for Viva –voce upon obtaining plagiarism % below 15%
8. Scoring Rubrics 8.1. List of Outcomes assessed by this Measure: x. PLO5: The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations, and receive clear instructions. To demonstrate effective communication in oral and written and utilize information effectively xi. PLO6: The student will have the ability to work both autonomously and collaboratively and to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings xii. PLO10: The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude xiii. PLO11: The student will have the ability to assimilate and integrate knowledge gained in the course of different modules throughout the various years of study and to apply this when required	50% students should secure a grade of 6 and above on a 10 point scale.
Indirect Measures:	
1. Comprehensive Exam 1.1 List of Outcomes assessed by this Measure: xxix. PLO1: The student will have the ability to apply knowledge, skills and attitudes appropriate to the physical sciences, their fundamentals and specialization to the solution of complex Science problems xxx. PLO2: The student will have the ability to retrieve, critically evaluate and present information in an appropriate format from the Physical literature xxxi. PLO3: The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations related to Physics xxxii. PLO4 : The student will have the ability to respond effectively to unfamiliar problems in scientific contexts xxxiii. PLO5: The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations, and receive clear instructions. To demonstrate effective communication in oral and written and utilize information effectively xxxiv. PLO6: The student will have the ability to work both autonomously and collaboratively and to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings xxxv. PLO7: The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts . Interact effectively within a global team / learning / professional group, recognize, support or be proactive in research and technical collaboration xxxvi. PLO8: The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice related to Physical sciences	80% students response range between 4-5 on the likert scale in the survey
2. Exit Interviews 2.1 List of Outcomes assessed by this Measure:	80% students should have response more than 75% in

xxxvii. PLO1: The student will have the ability to apply knowledge, skills and attitudes appropriate to the physical sciences, their fundamentals and specialization to the solution of complex Science problems xxviii. PLO4 : The student will have the ability to respond effectively to unfamiliar problems in scientific contexts xxxix. PLO5: The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations, and receive clear instructions. To demonstrate effective communication in oral and written and utilize information effectively xl. PLO6: The student will have the ability to work both autonomously and collaboratively and to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings xli. PLO7: The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts . Interact effectively within a global team / learning / professional group, recognize, support or be proactive in research and technical collaboration xlii. PLO8: The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice related to Physical sciences xliii. PLO9: The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own startups or professional practice xliv. PLO10: The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude xlv. PLO11: The student will have the ability to assimilate and integrate knowledge gained in the course of different modules throughout the various years of study and to apply this when required xlvi. PLO12: The student will have the ability to identify the impact of scientific knowledge in the field of Physics and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development	Student Exit Survey
3. External Reviewers 3.1 List of Outcomes assessed by this Measure: ix. PLO2: The student will have the ability to retrieve, critically evaluate and present information in an appropriate format from the Physical literature x. PLO3: The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations related to Physics xi. PLO8: The student will have the ability to apply ethical principles and demonstrate to professional ethics and responsibilities and norms of the Science & Technology practice related to Physical sciences xii. PLO9: The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own startups or professional practice	Student should obtain 7 or above on likert's scale in industry feedback.
4. Alumni Surveys 4.1 List of Outcomes assessed by this Measure: xvii. PLO1: The student will have the ability to apply knowledge, skills and attitudes appropriate to the physical sciences, their fundamentals and specialization to the solution of complex Science problems xviii. PLO4 : The student will have the ability to respond effectively to unfamiliar problems in scientific contexts xix. PLO5: The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations, and receive clear instructions. To demonstrate effective communication in oral and written and utilize information effectively xx. PLO6: The student will have the ability to work both autonomously and collaboratively and to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings xxi. PLO7: The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts . Interact effectively within a global team / learning / professional group, recognize, support or be proactive in research and technical collaboration xxii. PLO10: The student will have the ability to develop a lifelong thirst for knowledge and learning	80% of students reponse range between 3-5 on the likert scale in the student Alumni survey.

and encourage a pioneering, innovative and independent attitude xxiii. PLO11: The student will have the ability to assimilate and integrate knowledge gained in the course of different modules throughout the various years of study and to apply this when required xxiv. PLO12: The student will have the ability to identify the impact of scientific knowledge in the field of Physics and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development	

Summary of Results from Implementing Direct Measures of PLOs:	**Performance Target Was…**	
	Met	**Not Met**
Course Assesment	Met	-
Viva Voce	Met	-
Course-embedded assignments (e.g. Class Tests, Home Assignments, Quiz, Seminar, Term Paper , Presentations)	Met	-
Practical / Internship evaluations	Met	-
Thesis or Dissertation Projects	Met	-
Behavioral Observations	Met	-
Plagiarism check	Met	-
Scoring Rubrics	Met	-
Summary of Results from Implementing Indirect Measures of PLOs:	Performance Target Was…	
	Met	Not Met
Comprehensive Exam	Met	
Exit interviews	Met	
External Reviewers	Met	
Alumni Survey	Met	

5.7.4 Mapping of Assessment Measures to Intended Student Learning Outcomes

Assessment Tools / Programme Learning Outcomes	Direct			Indirect		
	Comprehensive Examination	**Scoring Rubrics**		**Exit Interviews**	**Industry Guide Feedback**	**Alumni Surveys**
PLO1	✓			✓		✓
PLO2					✓	
PLO3					✓	
PLO4				✓		✓
PLO5	✓	✓		✓		✓
PLO6	✓	✓		✓		✓
PLO7				✓		✓
PLO8	✓			✓	✓	
PLO9	✓			✓	✓	
PLO10	✓	✓		✓		✓
PLO11	✓	✓		✓		✓
PLO12	✓			✓		✓

5.7.5 Assessment Of Programme Operational Outcomes

Master's Level Programmes

Programme Name – Programme 1	
Programme Operational Objectives	
Create appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students	
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	
Demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.	
Continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.	
Continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.	
Arrange all necessary support system for the students to facilitate campus recruitment, higher education or starting their own ventures.	
Act ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs	
Create opportunities for international exposure for its students and faculty.	
Programme Operational Outcomes	
POO1	Programme of Master of Science (Applied Physics)will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students.
POO2	The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements.
POO3	Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge.
POO4	Programme of Master of Science (Applied Physics)will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure.
POO5	The Programme of Master of Science (Applied Physics) will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and

	staff.
POO6	Programme of Master of Science (Applied Physics)will develop and maintain strong relationship with corporate and support all the students for quality placements or join family business or start their own venture.
POO7	Programme of Master of Science (Applied Physics)will be continuously engaged in developing/ reviewing processes, policies and systems to achieve prestigious accreditations from various national, international bodies and ranking bodies.
POO8	The students of Master of Science (Applied Physics)will graduate in timely manner & prepare for higher education.

Assessment Instruments for Programme Operational Outcomes	**Performance Objectives (Targets/Criteria)**
1. Student Satisfaction Surveys 1.1. List of Outcomes assessed by this Measure: vii. POO1: Programme of Master of Science (Applied Physics)will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students. viii. POO2: The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements. ix. POO3: Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge.	80% students response range between 4-5 on the likert scale in the survey
7. Exit Surveys 5.8 List of Outcomes assessed by this Measure: xiii. POO 4: Programme of Master of Science (Applied Physics)will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure.	Individual student's score should be more than 75% in the exit survey
3. Course Evaluations 3.1. List of Outcomes assessed by this Measure: v. POO1: Programme of Master of Science (Applied Physics)will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students. vi. POO7: Programme of Master of Science (Applied Physics)will be continuously engaged in developing/ reviewing processes, policies and systems to achieve prestigious accreditations from various national, international bodies and ranking bodies.	80% students shall meet the pass criteria in course evaluation
4. Curriculum/Program Reviews 4.1. List of Outcomes assessed by this Measure: vii. POO1: Programme of Master of Science (Applied Physics)will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students. viii. POO5: The Programme of Master of Science (Applied Physics) will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff. ix. POO8: The students of Master of Science (Applied Physics)will graduate in timely manner & prepare for higher education.	Annual review of curriculum/ program structures by AAB and BoS
5.Benchmarking Studies 5.1. List of Outcomes assessed by this Measure: v. POO2: The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry	Benchmarking with 2-3 National / International Universities/ colleges of repute

requirements.	
6. Faculty and Staff Performance Reviews 6.1. List of Outcomes assessed by this Measure: v. POO2: The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements. vi. POO4: Programme of Master of Science (Applied Physics)will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure. vii. POO6: Programme of Master of Science (Applied Physics)will develop and maintain strong relationship with corporate and support all the students for quality placements or join family business or start their own venture. viii. POO7: Programme of Master of Science (Applied Physics)will be continuously engaged in developing/ reviewing processes, policies and systems to achieve prestigious accreditations from various national, international bodies and ranking bodies.	Annual PBAS submitted by all faculty/ staff members should have API score as per the University requirements
7. Placements Records of graduates 7.1. List of Outcomes assessed by this Measure: iii. POO 1: Programme of Master of Science (Applied Physics)will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students. iv. POO2: The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements. v. POO 8: The students of Master of Science (Applied Physics)will graduate in timely manner & prepare for higher education.	80% students shall be placed

Summary of Results from Implementing Measures of POOs:	Performance Target Was…	
	Met	Not Met
Students Satisfaction Surveys	Met	
Exit Surveys	Met	
Course Evaluations	Met	
Curriculum/Program Reviews	Met	
Benchmarking Studies	Met	
Placements Records of Graduates		*Not Met*
Students Satisfaction Surveys	Met	

5.7.6 Mapping of Assessment Measures to Operational Outcomes

Assessment Tools / Programme Operational Outcomes	Tool 1. Students Satisfaction Surveys	Tool.2 Exit Surveys	Tool .3 Course Evaluations	Tool .4Curriculum/Program Reviews	Tool.4 Benchmarking Studies	Tool.5 Faculty and Staff Performance Reviews	Tool.6 Placements Records of graduates
POO1	✓		✓	✓			✓
POO2	✓				✓	✓	✓
POO3	✓						
POO4		✓				✓	
POO5				✓			
POO6						✓	
POO7			✓			✓	
POO8				✓			✓

5.8 Master of Statistics

5.8.1 Programme Mission:

To provide education atpostgraduate level in Statistical Sciences 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.

5.8.2 Programme Educational Objectives

Programme Name – M.Stat
Programme Educational Objectives
PEO1: The student will become educated citizens who, as chemists contribute by applying, ethically, their knowledge to the educational, scientific, cultural, social, technological and economic development of their societies and nation at large
PEO2: The student will demonstrate a combination of analytical, computational, and experimental knowledge and skills to make them competent to pursue higher studies
PEO3: The student will be able to communicate effectively the knowledge gained with originality and presentation skills and develops a practical hand in laboratory work
PEO4: The student will be able to demonstrate communication skills in English and Foreign language that enable them to effectively participate and contribute in both linguistic environments
PEO5: The student will value the importance of lifelong learning as demonstrated by pursuing postgraduate studies, being involved in higher studies, multidisciplinary approach, professional societies, or pursuing scientific advancement and success
PEO6: The student will contribute to society by ethical application of their specialized knowledge to the educational, scientific cultural, social, technological and economic development of the society and the country at large

5.8.3 Programme Learning Outcomes

PLO 1	The student will have the ability to use one's potential by utilizing academic excellence and justifiable confidence, underpinned by honest self-awareness and grasp opportunities for self-development.
PLO 2	The student will have the ability to identify, define and analyze scientific problems and identify or create principles, methods, tools and processes to solve them. Competently use appropriate field (sampling survey), and experimental and observation based methods and techniques for the study of advance scientific problems/challenges.
PLO 3	The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, charts, summary statistics, reports and presentations within a scientific environment. Ablity to use and apply professional softwares like SAS, SaTscan, STATA, Minitab, MS EXCEL, SPSS, R-GUI, MS SOLVER etc. for scientific data analysis.
PLO 4	The student will have the ability to apply core scientific principles and techniques to facilitate problem solving in almost every field of great human importance and development. Ability to respond effectively to unfamiliar problems in scientific contexts.
PLO 5	The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude.
PLO 6	The student will have the ability to use knowledge and understanding of the Statistical and Scientific principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PLO 7	The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts. Interact effectively within a global team / learning / professional group, recognise, support or be proactive in research and technical collaboration.
PLO 8	The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, correct interpretation and decision making, projection and forecasting, model building, make effective presentations, and give and receive clear instructions
PLO 9	The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own startups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues.
PLO 10	The student will have the ability to identify the impact of scientific knowledge and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PLO 11	The student will have the ability to analyze, apply, reproduce and innovate the knowledge of Statistics (pure, basic and applied), computational and stochastic (probability) sciences, their fundamentals and specialization to the solution of complex real life and virtual statistical problems.
PLO 12	The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings.

Assessment Instruments for Programme Learning Outcomes	Performance Objectives (Targets/Criteria)
Direct Measures:	
1. Comprehensive Examination 1.1. List of Outcomes assessed by this Measure: xxviii. PLO1: The student will have the ability to use one's potential by utilizing academic excellence and justifiable confidence, underpinned by honest self-awareness and grasp opportunities for self-development. xxix. PLO5: The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. xxx. PLO6: The student will have the ability to use knowledge and understanding of the Statistical and Scientific principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. xxxi. PLO8: The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, correct interpretation and decision making, projection and forecasting, model building, make effective presentations, and give and receive clear instructions xxxii. PLO9: The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own startups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues. xxxiii. PLO10: The student will have the ability to identify the impact of scientific knowledge and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. xxxiv. PLO11: The student will have the ability to analyze, apply, reproduce and innovate the knowledge of Statistics (pure, basic and applied), computational and stochastic (probability) sciences, their fundamentals and specialization to the solution of complex real life and virtual statistical problems. xxxv. PLO12: The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings.	80% students shall pass the exam
2. Viva Voce 2.1. List of Outcomes assessed by this Measure: iii. PLO1: The student will have the ability to use one's potential by utilizing academic excellence and justifiable confidence, underpinned by honest self-awareness and grasp opportunities for self-development.	80% students shall pass the exam
3. Course-embedded assignments 3.1. List of Outcomes assessed by this Measure: v. PLO2: The student will have the ability to identify, define and analyze scientific problems and identify or create principles, methods, tools and processes to solve them. Competently use appropriate field (sampling survey), and experimental and observation based methods and techniques for the study of advance scientific problems/challenges. vi. PLO3: The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, charts, summary statistics, reports and presentations within a scientific environment. Ablity to use and apply professional softwares like SAS, SaTscan, STATA, Minitab, MS EXCEL, SPSS, R-GUI, MS SOLVER etc. for scientific data analysis.	100% students will undertake and complete the course

4. Practical / Internship evaluations 4.1. List of Outcomes assessed by this Measure: v. PLO2: The student will have the ability to identify, define and analyze scientific problems and identify or create principles, methods, tools and processes to solve them. Competently use appropriate field (sampling survey), and experimental and observation based methods and techniques for the study of advance scientific problems/challenges. vi. PLO3: The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, charts, summary statistics, reports and presentations within a scientific environment. Ablity to use and apply professional softwares like SAS, SaTscan, STATA, Minitab, MS EXCEL, SPSS, R-GUI, MS SOLVER etc. for scientific data analysis.	100% students will undertake and complete the course
5. Thesis or Dissertation Projects 5.1. List of Outcomes assessed by this Measure: ix. PLO2: The student will have the ability to identify, define and analyze scientific problems and identify or create principles, methods, tools and processes to solve them. Competently use appropriate field (sampling survey), and experimental and observation based methods and techniques for the study of advance scientific problems/challenges. x. PLO3: The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, charts, summary statistics, reports and presentations within a scientific environment. Ablity to use and apply professional softwares like SAS, SaTscan, STATA, Minitab, MS EXCEL, SPSS, R-GUI, MS SOLVER etc. for scientific data analysis. xi. PLO4: The student will have the ability to apply core scientific principles and techniques to facilitate problem solving in almost every field of great human importance and development. Ability to respond effectively to unfamiliar problems in scientific contexts. xii. PLO7: The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts. Interact effectively within a global team / learning / professional group, recognise, support or be proactive in research and technical collaboration.	100% students will undertake and complete the course
6. Behavioral Observations 6.1. List of Outcomes assessed by this Measure: v. PLO6: The student will have the ability to use knowledge and understanding of the Statistical and Scientific principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. vi. PLO7: The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts. Interact effectively within a global team / learning / professional group, recognise, support or be proactive in research and technical collaboration.	80% students should secure a grade 6 and above on a 10 point scale in a journal for success componentof behavioural science course.
7. Plagiarism check 7.1. List of Outcomes assessed by this Measure: iii. PLO8: The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, correct interpretation and decision making, projection and forecasting, model building, make effective presentations, and give and receive clear instructions	100% students are checked for plagiarism in NTCC report submissions and are allowed to appear for Viva –voce upon obtaining plagiarism % below 15%
8. Scoring Rubrics 8.1. List of Outcomes assessed by this Measure: xiv. PLO5: The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. xv. PLO6: The student will have the ability to use knowledge and understanding of the Statistical and Scientific principles and apply these to one's own work, as a member and leader in a team, to manage projects and in	50% students should secure a grade of 6 and above on a 10 point scale.

multidisciplinary environments xvi. PLO10: The student will have the ability to identify the impact of scientific knowledge and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. xvii. PLO11: The student will have the ability to analyze, apply, reproduce and innovate the knowledge of Statistics (pure, basic and applied), computational and stochastic (probability) sciences, their fundamentals and specialization to the solution of complex real life and virtual statistical problems.	
Indirect Measures:	
1. Comprehensive Exam 1.1 List of Outcomes assessed by this Measure: xlvii. PLO1: The student will have the ability to use one's potential by utilizing academic excellence and justifiable confidence, underpinned by honest self-awareness and grasp opportunities for self-development. xlviii. PLO2: The student will have the ability to identify, define and analyze scientific problems and identify or create principles, methods, tools and processes to solve them. Competently use appropriate field (sampling survey), and experimental and observation based methods and techniques for the study of advance scientific problems/challenges. xlix. PLO3: The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, charts, summary statistics, reports and presentations within a scientific environment. Ablity to use and apply professional softwares like SAS, SaTscan, STATA, Minitab, MS EXCEL, SPSS, R-GUI, MS SOLVER etc. for scientific data analysis. l. PLO4: The student will have the ability to apply core scientific principles and techniques to facilitate problem solving in almost every field of great human importance and development. Ability to respond effectively to unfamiliar problems in scientific contexts. li. PLO5: The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude lii. PLO6: The student will have the ability to use knowledge and understanding of the Statistical and Scientific principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. liii. PLO7: The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts. Interact effectively within a global team / learning / professional group, recognise, support or be proactive in research and technical collaboration liv. PLO8: The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, correct interpretation and decision making, projection and forecasting, model building, make effective presentations, and give and receive clear instructions	80% students response range between 4-5 on the likert scale in the survey
2. Exit Interviews 2.1 List of Outcomes assessed by this Measure: lv. PLO1: The student will have the ability to use one's potential by utilizing academic excellence and justifiable confidence, underpinned by honest self-awareness and grasp opportunities for self-development. lvi. PLO4: The student will have the ability to apply core scientific principles and techniques to facilitate problem solving in almost every field of great human importance and development. Ability to respond effectively to unfamiliar problems in scientific contexts. lvii. PLO5: The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. lviii. PLO6: The student will have the ability to use knowledge and understanding of the Statistical and Scientific principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.	80% students should have response more than 75% in Student Exit Survey

lix. PLO7: The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts. Interact effectively within a global team / learning / professional group, recognise, support or be proactive in research and technical collaboration. lx. PLO8: The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, correct interpretation and decision making, projection and forecasting, model building, make effective presentations, and give and receive clear instructions lxi. PLO9: The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own startups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues. lxii. PLO10: The student will have the ability to identify the impact of scientific knowledge and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. lxiii. PLO11: The student will have the ability to analyze, apply, reproduce and innovate the knowledge of Statistics (pure, basic and applied), computational and stochastic (probability) sciences, their fundamentals and specialization to the solution of complex real life and virtual statistical problems lxiv. PLO12: The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings	
3. External Reviewers 3.1 List of Outcomes assessed by this Measure: xiii. PLO2: The student will have the ability to identify, define and analyze scientific problems and identify or create principles, methods, tools and processes to solve them. Competently use appropriate field (sampling survey), and experimental and observation based methods and techniques for the study of advance scientific problems/challenges. xiv. PLO3: The student will have the ability to use appropriate information technology skills in order to communicate effectively using graphical techniques, charts, summary statistics, reports and presentations within a scientific environment. Ablity to use and apply professional softwares like SAS, SaTscan, STATA, Minitab, MS EXCEL, SPSS, R-GUI, MS SOLVER etc. for scientific data analysis xv. PLO8: The student will have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, correct interpretation and decision making, projection and forecasting, model building, make effective presentations, and give and receive clear instructions xvi. PLO9: The student will have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific practices and apply the fundamental and specialized knowledge of the discipline to own startups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues	Student should obtain 7 or above on likert's scale in industry feedback.
4. Alumni Surveys 4.1 List of Outcomes assessed by this Measure: xxv. PLO1: The student will have the ability to use one's potential by utilizing academic excellence and justifiable confidence, underpinned by honest self-awareness and grasp opportunities for self-development xxvi. PLO4: The student will have the ability to apply core scientific principles and techniques to facilitate problem solving in almost every field of great human importance and development. Ability to respond effectively to unfamiliar problems in scientific contexts xxvii. PLO5: The student will have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude xxviii. PLO6: The student will have the ability to use knowledge and understanding of the Statistical and Scientific principles and apply these to one's own work, as a	80% of students reponse range between 3-5 on the likert scale in the student Alumni survey.

member and leader in a team, to manage projects and in multidisciplinary environments xxix. PLO7: The student will have the ability to appraise global perspectives, developed through topics or even modules, that relate to particular international issues or contexts. Interact effectively within a global team / learning / professional group, recognise, support or be proactive in research and technical collaboration xxx. PLO10: The student will have the ability to identify the impact of scientific knowledge and solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development xxxi. PLO11: The student will have the ability to analyze, apply, reproduce and innovate the knowledge of Statistics (pure, basic and applied), computational and stochastic (probability) sciences, their fundamentals and specialization to the solution of complex real life and virtual statistical problems xxxii. PLO12: The student will have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings	

Summary of Results from Implementing Direct Measures of PLOs:	**Performance Target Was…**	
	Met	**Not Met**
Course Assesment	Met	-
Viva Voce	Met	-
Course-embedded assignments (e.g. Class Tests, Home Assignments, Quiz, Seminar, Term Paper , Presentations)	Met	-
Practical / Internship evaluations	Met	-
Thesis or Dissertation Projects	Met	-
Behavioral Observations	Met	-
Plagiarism check	Met	-
Scoring Rubrics	Met	-
Summary of Results from Implementing Indirect Measures of PLOs:	Performance Target Was…	
	Met	Not Met
Comprehensive Exam	Met	
Exit interviews	Met	
External Reviewers	Met	
Alumni Survey	Met	

5.8.4 Mapping of Assessment Measures to Intended Student Learning Outcomes

Assessment Tools / Programme Learning Outcomes	Direct			Indirect		
	Comprehensive Examination	**Scoring Rubrics**		**Exit Interviews**	**Industry Guide Feedback**	**Alumni Surveys**
PLO1	✓			✓		✓
PLO2					✓	
PLO3					✓	
PLO4				✓		✓
PLO5	✓	✓		✓		✓
PLO6	✓	✓		✓		✓
PLO7				✓		✓
PLO8	✓			✓	✓	
PLO9	✓			✓	✓	
PLO10	✓	✓		✓		✓
PLO11	✓	✓		✓		✓
PLO12	✓			✓		✓

5.8.5 Assessment Of Programme Operational Outcomes

Master's Level Programmes

Programme Name – M.Stat
Programme Operational Objectives/ Goals
Create appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students
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
Demonstrate sensitivity to the diverse needs of students and accordingly develop facilities and services.
Continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
Continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.
Arrange all necessary support system for the students to facilitate campus recruitment, higher education or starting their own ventures.
Act ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
Create opportunities for international exposure for its students and faculty.

Programme Operational Outcomes	
POO1	Programme of Master of Statistics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students.
POO2	The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements.
POO3	Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge.
POO4	Programme of Master of Statistics will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure.
POO5	The Programme of Master of Statistics will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff.
POO6	Programme of Master of Statistics will develop and maintain strong relationship with corporate and support all the students for quality placements or join family business or start their own venture.
POO7	Programme of Master of Statistics will be continuously engaged in developing/ reviewing processes, policies and systems to achieve prestigious accreditations from various national, international bodies and ranking bodies.
POO8	The students of Master of Statistics will graduate in timely manner & prepare for higher education.

Assessment Instruments for Programme Operational Outcomes	Performance Objectives (Targets/Criteria)
1. Student Satisfaction Surveys 1.1. List of Outcomes assessed by this Measure: x. POO1: Programme of Master of Statistics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students xi. POO2: The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements	80% students response range between 3-5 on the likert scale in the survey
6 Exit Surveys 5.8 List of Outcomes assessed by this Measure: xiv. POO1: Programme of Master of Statistics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students xv. POO2: The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements xvi. POO4: Programme of Master of Statistics will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure. xvii. POO5: The Programme of Master of Statistics will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff xviii. POO6: Programme of Master of Statistics will develop and maintain strong relationship with corporate and support all the students for quality placements or join family business or start their own venture. xix. POO8: The students of Master of Statistics will graduate in timely manner & prepare for higher education	80% students should have response more than 75% in Student Exit Survey
3. Course Evaluations 3.1. List of Outcomes assessed by this Measure: vii. POO1: Programme of Master of Statistics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students viii. POO3: Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge	80% students shall meet the pass criteria in course evaluation
4. Curriculum/Program Reviews 4.1. List of Outcomes assessed by this Measure: x. POO1: Programme of Master of Statistics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students xi. POO3: Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge xii. POO4: Programme of Master of Statistics will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure	Annual review of curriculum/ program structures by AAB and BoS

5.Benchmarking Studies 5.1. List of Outcomes assessed by this Measure: vi. POO2: The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements vii. POO7: Programme of Master of Statistics will be continuously engaged in developing/ reviewing processes, policies and systems to achieve prestigious accreditations from various national, international bodies and ranking bodies	Benchmarking with 2-3 National / International Universities/ colleges of repute
6. Faculty and Staff Performance Reviews 6.1. List of Outcomes assessed by this Measure: ix. POO1: Programme of Master of Statistics will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students x. POO5: The Programme of Master of Statistics will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff	Feedback
7. Placements Records of graduates 7.1. List of Outcomes assessed by this Measure: vi. POO3: Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge	80% students shall be placed

Summary of Results from Implementing Measures of POOs:	**Performance Target Was…**	
	Met	**Not Met**
Students Satisfaction Surveys	Met	-
Exit Surveys	Met	-
Course Evaluations	Met	-
Curriculum/Program Reviews	Met	-
Benchmarking Studies	Met	-
Placements Records of Graduates	-	Not Met
Students Satisfaction Surveys	Met	-

5.8.6 Mapping of Assessment Measures to Operational Outcomes

Assessment Tools / Programme Operational Outcomes	Students Satisfaction Surveys	Exit Surveys	Course Evaluations	Curriculum/Program Reviews	Benchmarking Studies	Faculty and Staff Performance Reviews	Placements Records of graduate
POO1	✓	✓	✓	✓		✓	
POO2	✓	✓			✓		
POO3			✓	✓			✓
POO4		✓		✓			
POO5		✓				✓	
POO6		✓					
POO7					✓		
POO8	✓	✓					

5.9 Bachelor of Forensic Science

5.9.1 Programme Mission:

To provide education at undergradute level in Forensic Sciences & 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 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 Operational Objectives/ Goals

- **Create** appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students
- **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
- **Demonstrate** sensitivity to the diverse needs of students and accordingly develop facilities and services.
- Continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
- Continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.
- **Arrange all necessary** support system for the students to facilitate campus recruitment, higher education or starting their own ventures.
- **Act** ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
- **Create** opportunities for international exposure for its students and faculty.

5.9.3 Programme Educational Objectives
1. Inculcate moral value, professional ethics & business communication skills in the students.
2. Enable students to understand and use different vocabularies of crime, criminality and law and order.
3. Encourage students to apply theoretical concepts to contemporary developments.
4. Equip students with skills in reconstructing events surrounding an incident.
5. Facilitate the ability to generate, record, collate and interpret scientific data in the laboratory.
6. Understand the diverse historical, economic, social and political influences upon criminology and its foci.
7. Describe theoretical, conceptual, analytical and experimental knowledge and skills.
8. Apply scientific techniques for the examination of forensic evidences.
9. Describe scientific information to required for the support of criminal justice system.
10. Foster both necessary independence and collaborative skills.

5.9.4 Programme Learning Outcomes
1. The capacity to investigate and explain a diverse range of often real time forensic problems.
2. Use of instrumentation and tools for systematic analysis of evidences including biological, chemical, digital, etc.
3. The ability to use professional software for analysis.
4. Critical evaluation of real time crime scene cases.
5. Develop the written and verbal communication skills.
6. Qualities of leadership, responsibility, personal integrity, empathy, care
7. Provide experiences and challenges to develop self confidence, self awareness for future goals
8. Respect for others, accountability and self-regulation.
9. Understanding and experience in Forensic Science Lab setting.
10. Develop an understanding towards their professional carrier.
11. Approach to learning and overcomes weaknesses, whilst recognising the importance of planning and target-setting
12. Eco-friendly for evidence and analysis and disposal of waste.

5.9.5 Assessment Instruments for Programme Learning Outcomes	Performance Objectives (Targets/Criteria)
Direct Measures:	
1. Comprehensive Examination 1.1. List of Outcomes assessed by this Measure: i. PLO 1 ii. PLO 2 iii. PLO 3 iv. PLO 4 v. PLO 5 vi. PLO 7 vii. PLO 8 viii. PLO 9 ix. PLO 10 x. PLO 11	80% of the students who enter UG prog. will graduate within three years.
Indirect Measures:	
1. Alumni Survey 1.1. List of Outcomes assessed by this Measure: i. PLO 2 ii. PLO 4 iii. PLO 6 iv. PLO 9 v. PLO 10 vi. PLO 12	Upgrade and benchmark the curriculum as per the Regulatory bodies and student feedback

Summary of Results from Implementing Direct Measures of PLOs:	Performance Target Was…	
	Met	Not Met
1. Comprehensive Examination	**X**	

Summary of Results from Implementing Indirect Measures of PLOs:	Performance Target Was…	
	Met	Not Met
1. Alumni Survey	**X**	

5.9.6Mapping of Assessment Measures to Intended Student Learning Outcomes

Assessment / Programme Learning Outcomes	Comprehensive Examination	Alumni Survey
1. The capacity to investigate and explain a diverse range of often real time forensic problems.	X	
2. Use of instrumentation and tools for systematic analysis of evidences including biological, chemical, digital, etc.	X	X
3. The ability to use professional software for analysis.	X	
4. Critical evaluation of real time crime scene cases.	X	X
5. Develop the written and verbal communication skills.	X	
6. Qualities of leadership, responsibility, personal integrity, empathy, care		X
7. Provide experiences and challenges to develop self confidence, self awareness for future goals	X	
8. Respect for others, accountability and self-regulation.	X	
9. Understanding and experience in Forensic Science Lab setting.	X	X
10. Develop an understanding towards their professional carrier.	X	X
11. Approach to learning and overcomes weaknesses, whilst recognising the importance of planning and	X	
12. Eco-friendly for evidence and analysis and disposal of waste.		X

5.10 Master of Forensic Science

5.10.1 Programme Mission:

To provide education at postgraduate level in Forensic Sciences & 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 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 Operational Objectives/ Goals

- **Create** appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students
- **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
- **Demonstrate** sensitivity to the diverse needs of students and accordingly develop facilities and services.
- Continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
- Continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.
- **Arrange all necessary** support system for the students to facilitate campus recruitment, higher education or starting their own ventures.
- **Act** ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
- **Create** opportunities for international exposure for its students and faculty.

Programme Operational Objectives
1. Provide opportunity to participate in co-curricular and extracurricular activities
2. Provide conducive environment and infrastructure to achieve excellence in learning and research
3. To inculcate core values and ethical conduct amongst students.
4. To provide ample opportunities for exposure to students in the field.
5. To facilitate employment opportunities and also support students to start their own ventures

6. To provide ample opportunities for international exposure to faculty and students.
7. To develop self confidence and self awareness for future goals.
8. To evaluate the wide outlook and skills necessary to thrive in the field of forensic science
9. To examine and combine theoretical models with evidences.
10. To demonstrate Eco-friendly methods for evidence analysis and waste disposal.

Programme Learning Outcomes
1. The capacity to investigate and explain a diverse range of often real time forensic problems.
2. Use of instrumentation and tools for systematic analysis of evidences including biological, chemical, digital, etc.
3. The ability to use professional software for analysis.
4. Critical evaluation of real time crime scene cases.
5. Develop the written and verbal communication skills.

6. Qualities of leadership, responsibility, personal integrity, empathy, care
7. Provide experiences and challenges to develop self confidence, self awareness for future goals
8. Respect for others, accountability and self-regulation.
9. Understanding and experience in Forensic Science Lab setting.
10. Develop an understanding towards their professional carrier.
11. Approach to learning and overcomes weaknesses, whilst recognising the importance of planning and target-setting
12. Eco-friendly for evidence and analysis and disposal of waste.

Assessment Instruments for Programme Operational Outcomes	**Performance Objectives (Targets/Criteria)**	
1. Student Satisfaction surveys 1.1. List of Outcomes assessed by this Measure: i. POO 1 ii. POO 2 iii. POO 3 iv. POO 4 v. POO 5 vi. POO 6 vii. POO 7 viii. POO 8 ix. POO 9 x. POO 10	Above 60 % score in Student feedback analysis	
2. Faculty and Staff Performance Reviews 2.1 List of Outcomes assessed by this Measure: i. POO 2 ii. POO 3 iii. POO 5 iv. POO 8 v. POO 10	Minimum 3 out of 5 in PBAS	
Summary of Results from Implementing Measures of POOs:	Performance Target Was…	
	Met	Not Met
Student Satisfaction surveys	√	

2.1 Mapping of Assessment Measures to Operational Outcomes

Assessment Tools / Programme Operational Outcomes	Student Satisfaction surveys	Faculty and Staff Performance Reviews
1. Provide opportunity to participate in co-curricular and extracurricular activities	√	
2. Provide conducive environment and infrastructure to achieve excellence in learning and research	√	√
3. To inculcate core values and ethical conduct amongst students.	√	√
4. To provide ample opportunities for exposure to students in the field.	√	
5. To facilitate employment opportunities and also support students to start their own ventures	√	√
6. To provide ample opportunities for international exposure to faculty and students.	√	
7. To develop self confidence and self awareness for future goals.	√	
8. To evaluate the wide outlook and skills necessary to thrive in the field of forensic science	√	√
9. To examine and combine theoretical models with evidences.	√	
10. To demonstrate Eco-friendly methods for evidence analysis and waste disposal.	√	√

5.11 B.Tech.(Food Technology)

5.11.1 Programme Mission:

To provide education at postgraduate level in Food 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 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

5.11.2 Programme Operational Objectives/ Goals

- **Create** appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students
- **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
- **Demonstrate** sensitivity to the diverse needs of students and accordingly develop facilities and services.
- Continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
- Continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.
- **Arrange all necessary** support system for the students to facilitate campus recruitment, higher education or starting their own ventures.
- **Act** ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
- **Create** opportunities for international exposure for its students and faculty.

5.11.3 Programme Educational Objectives
1. Students will acquire a combination of theoretical, conceptual, analytical, computational, and experimental knowledge and skills in the area of Food Science and Technology.
2. Students will be able to develop and demonstrate the understanding of global environment and relate scientific issues to the broader social, economic, legal, cultural and environmental contexts.
3. Students will develop and apply understanding to analyze and formulate scientific approach for solving real life problems.
4. Students will analyze the scientific information and infer the results for successful and productive careers or advance studies/research in the field of Food Science & Technology
5. Students will able to compile the skill set to design and develop scientific models and products in the field of Food Science and Technology.
6. Students will able to assess and compare the scientific information to enable them to effectively participate and contribute to the society.

7. Students will demonstrate professional attitudes, effective communication and behavioral skills that support and enhance individual's performance.
8. Students will develop professional ethics and academic integrity and demonstrate these as an individual/ team member/ leader in diverse teams.
9. Students will critically evaluate and reflect learning and development throughout their career in the field of Food Science and Technology.
5.11.4 Programme Learning Outcomes
PLO 1 The student shall have the ability to reproduce and apply the knowledge of Food Processing Technology, its fundamentals and specialization to the solution of complex Scientific & Technological problems in Food Technology
PLO 2 The student shall have the ability to identify, define and analyze problems and identify or create processes to solve them Competently use appropriate field and laboratory methods and techniques for the study of advance problems/challenges in Food Processing Technology
PLO 3 The student shall have the ability to demonstrate a confident familiarity with a broad range of appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations within a scientific and technical environment. Ablity to use and apply professional softwares for scientific data analysis in the field of Food Processing Technology
PLO 4 The student shall have the ability to use and apply core Food Technology principles and techniques to facilitate problem solving related fields. Ability to respond effectively to unfamiliar problems in Food Processing Technology contexts
PLO 5 The student shall have the ability to communicate effectively on complex activities with the Food Technology community and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, make effective presentations, and give and receive clear instructions
PLO 6 The student shall have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings. Ability to maximize one's potential by utilizing academic excellence and justifiable confidence, underpinned by honest self-awareness and grasp opportunities for self-development.
PLO 7 The student shall have the ability to appraise global perspectives, developed through topics or even modules, that relate to Food Technology issues or contexts . Interact effectively within a global team / learning / professional group, recognise, support or be proactive in research and technical collaboration.
PLO 8 The student shall have the ability to apply ethical principles and commit to professional ethics and responsibilities and norms of the Food Technology practices. Able to work independently and sustainably, in a way that is informed by openness, curiosity and a desire to meet new challenges.
PLO 9 The student shall have the ability to recognize the impact of knowledge and understanding of the Food Technology principles on the responsibilities relevant to the professional practices and apply the fundamental and specialized knowledge to own start ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues.
PLO 10 The student shall have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. Have the preparation and ability

to engage in independent and life-long learning in the broadest context of technological change
PLO 11 The student shall have the ability to demonstrate knowledge and understanding of the Food Technology principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments
PLO 12 The student shall have the ability to identify the impact of the Food Technology solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development

5.11.5 Assessment Instruments for Programme Learning Outcomes	**Performance Objectives (Targets/Criteria)**
Direct Measures:	
1. **End Term examinations** PLO 1, 2,,3, 4,5 ,6 ,7,8,9,10,11,12	80% of the students should pass
2. Course Embedded Assignments (Class test, Home Assignments, Seminar, Viva, Term paper, prsenttaions) PLO 1, 2,,3, 4,5 ,6 ,7,8,9,10,11,12	80% of the students should pass
3.Comprehensive Examination PLO 1, 2,,3, 4,5 ,6 ,7,8,9,10,11,12	100% of the students should appear and 80% shall pass
4.Scoring Rubrics PLO 2,,3, 5 ,6 ,7,8, 10,12	100% students will be assessed
5.Plagriarism Check PLO 3, 5, 6, 7, 9, 11,12	100% students should have plagrism below 15%
6. Vive voce PLO 1, 2,,3, 4,5 ,6 ,7,8,9,10,11,12	100% of the students should appear and 80% shall pass
Indirect Measures:	
1. **Almuni Surveys** PLO 1, 2,,3, 4,5 ,6 ,7,8,9,10,11,12	60% of the Alumni should participate
2. **Curriculum and Syallbus analysis** PLO 1, 2,3,4,5,9,11,12	100% faculties shall do
Summary of Results from Implementing Direct Measures of	Performance Target Was…

PLOs:	Met	Not Met
Direct Measure 1: **End Term examinations**	Met	
Direct Measure 2: **Course Embedded Assignments**	Met	
Direct Measure 3: **Comprehensive Examination**	Met	
Direct Measure 4: **Scoring Rubrics**	Met	
Direct Measure 5: **Plagriarism Check**	Met	
Direct Measure 6: **Vive voce**	Met	
Summary of Results from Implementing Indirect Measures of PLOs:	Performance Target Was…	
	Met	Not Met
Indirect Measure 1: **Almuni Surveys**	Met	
Indirect Measure 2: **Curriculum and Syallbus analysis**	Met	

5.11.6 Mapping of Assessment Measures to Intended Student Learning Outcomes

Assessment Tools / Programme Learning Outcomes (example)	**Comprensive Exam**	**Major Project**	**BS Result**	**JoS & ,SAP**	**BC Result**	**BC Assignment**	**FBL Result**	**FBL Assignment**	**Emp& Ent.**	**Student Exit Survey**	**Alumni Survey**
PLO 1 The student shall have the ability to reproduce and apply the knowledge of Food Processing Technology, its fundamentals and specialization to the solution of complex Scientific & Technological problems in Food Technology	**X**	**X**							**X**	**X**	**X**
PLO 2 The student shall have the ability to identify, define and analyze problems and identify or create processes to solve them Competently use appropriate field and laboratory methods and techniques for the study of advance problems/challenges in Food Processing Technology	**X**	**X**							**X**	**X**	**X**
PLO 3 The student shall have the ability to demonstrate a confident familiarity with a broad range of appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations within a scientific and technical environment. Ablity to use and apply professional softwares for scientific data analysis in the field of Food Processing Technology	**X**	**X**	**X**		**X**	**X**			**X**	**X**	**X**
PLO 4 The student shall have the ability to use and apply core Food Technology principles and techniques to facilitate problem solving related fields. Ability to respond effectively to unfamiliar problems in Food Processing Technology contexts	**X**	**X**							**X**	**X**	**X**
PLO 5 The student shall have the ability to communicate effectively on complex activities with	**X**	**X**	**X**		**X**	**X**			**X**	**X**	**X**

the Food Technology community and with society at large, such as, being able to comprehend and write effective reports ,research papers and design documentation, make effective presentations, and give and receive clear instructions											
PLO 6 The student shall have the ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings. Ability to maximize one's potential by utilizing academic excellence and justifiable confidence, underpinned by honest self-awareness and grasp opportunities for self-development.	**X**	**X**	**X**		**X**	**X**			**X**	**X**	**X**
PLO 7 The student shall have the ability to appraise global perspectives, developed through topics or even modules, that relate to Food Technology issues or contexts . Interact effectively within a global team / learning / professional group, recognise, support or be proactive in research and technical collaboration.	**X**	**X**	**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**
PLO 8 The student shall have the ability to apply ethical principles and commit to professional ethics and responsibilities and norms of the Food Technology practices. Able to work independently and sustainably, in a way that is informed by openness, curiosity and a desire to meet new challenges.	**X**		**X**		**X**	**X**			**X**	**X**	**X**
PLO 9 The student shall have the ability to recognize the impact of knowledge and understanding of the Food Technology principles on the responsibilities relevant to the professional practices and apply the fundamental and specialized knowledge to own start ups or professional practice. Ability to make decisions on the basis of rigorous and independent thought, taking into account ethical and professional issues.	**X**	**X**			**X**	**X**			**X**	**X**	**X**
PLO 10 The student shall have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. Have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change	**X**	**X**			**X**	**X**	**X**	**X**	**X**	**X**	**X**
PLO 11 The student shall have the ability to demonstrate knowledge and understanding of the Food Technology principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments	**X**	**X**							**X**	**X**	**X**
PLO 12 The student shall have the ability to identify the impact of the Food Technology solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.	**X**	**X**			**X**	**X**	**X**	**X**	**X**	**X**	**X**

5.12 B.Tech+M.Tech (Nanotechnology) Dual Degree

5.12.1 Programme Mission:

To provide education at postgraduate level in Nano 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 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

5.12.2 Programme Operational Objectives/ Goals

- **Create** appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students
- **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
- **Demonstrate** sensitivity to the diverse needs of students and accordingly develop facilities and services.
- Continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
- Continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.
- **Arrange all necessary** support system for the students to facilitate campus recruitment, higher education or starting their own ventures.
- **Act** ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
- **Create** opportunities for international exposure for its students and faculty.

5.12.3 Programme Educational Objectives/Goals:

1	Students will acquire a combination of theoretical, conceptual, analytical, computational, and experimental knowledge and skills in the field of Nanoscience & Nanotechnology.
2	Students will be able to develop and demonstrate the understanding of global environment and relate scientific issues to the broader social, economic, legal, cultural and environmental contexts in the field of Nanoscience & Nanotechnology.
3	Students will develop and apply understanding to analyze and formulate scientific approach for solving real life problems in the field of Nanoscience & Nanotechnology.
4	Students will analyze the scientific information and infer the results for successful and productive careers or advance studies/research in the field of Nanoscience & Nanotechnology.
5	Students will able to compile the skill set to design and develop scientific models and products in the field of Nanoscience & Nanotechnology.
6	Students will able to assess and compare the scientific information to enable them to effectively participate and contribute to the society with the help of Nanoscience & Nanotechnology.

7	Students will demonstrate professional attitudes, effective communication and behavioral skills that support and enhance individual's performance.
8	Students will develop professional ethics and academic integrity and demonstrate these as an individual/ team member/ leader in diverse teams.
9	Students will critically evaluate and reflect learning and development throughout their career.

5.12.4Programme Operational Objectives (POOs)

POO 1	The programme of B.Tech+M.Tech (Nanotechnology) Dual Degree intends to facilitate academically conducive environment and infrastructure to achieve excellence in teaching,
POO 2	The programme of B.Tech+M.Tech (Nanotechnology) Dual Degree will provide ample opportunities to its students to participate in curricular, co-curricular and extracurricular activities for their holistic development.
POO 3	The programme of B.Tech+M.Tech (Nanotechnology) Dual Degree will facilitate environment for innovation and research excellence for the intellectual growth of
POO 4	The programme of B.Tech+M.Tech (Nanotechnology) Dual Degree will inculcate core values and ethical conduct amongst students.
POO 5	The programme of B.Tech+M.Tech (Nanotechnology) Dual Degree will encourage cultural diversity and a sense of social and environmental responsibility
POO 6	The programme of B.Tech+M.Tech (Nanotechnology) Dual Degree will provide ample opportunities for international exposure to students.
POO 7	The programme of B.Tech+M.Tech (Nanotechnology) Dual Degree will be involved in continual improvement of processes and systems and aim to place the student at national
POO 8	The programme of B.Tech+M.Tech (Nanotechnology) Dual Degree will build a strong industry interaction by way of alumni networks and empanelment of expertise from
POO 9	The programme of B.Tech+M.Tech (Nanotechnology) Dual Degree will facilitate employment opportunities and also support students to start their own ventures
POO 10	The programme of B.Tech+M.Tech (Nanotechnology) Dual Degree will facilitate good governance in discharge of responsibilities and execution of policies and programs in

5.12.5Programme Learning Outcomes(PLOs)

PLO 1	The student shall have the ability to extend the indepth knowledge of advance nanoscience and nanotechnology and its application for technological development and academia
PLO 2	The student shall have the ability to exhibit a comprehensive and critical understanding of the subject with application of nanoscience & technology for better globe.
PLO 3	The student shall have the ability to exhibit originality in the application of knowledge and practical by established techniques to formulate appropriate solution to various problem related to nanoscience and nanotechnology
PLO 4	The student shall have the ability to communicate effectively on complex activities with the Scientific community and with society at large, such as, being able to comprehend and write
PLO 5	The student shall have the ability to demonstrate a confident familiarity with a broad range of appropriate information technology skills in order to communicate effectively using graphical techniques, reports and presentations with a scientific and technical ability to use and apply professional software's for scientific data analysis.

PLO 6	The student shall have the ability to ability to function effectively as an individual, and as a member or leader in diverse teams in multidisciplinary settings. Ability to maximize one's potential by utilizing academic excellence and justifiable confidence, underpinned by
PLO 7	The student shall have the ability to appraise global perspectives, developed through topics or even modules that relate to particular international issues or contexts. Interact effectively within a global team / learning / professional group, recognise, support or be proactive in
PLO 8	The student shall have the ability to apply ethical principles and commit to professional ethics and responsibilities and norms of the Science & Technology practice. Able to work independently and sustainably, in a way that is informed by openness, curiosity and a desire
PLO 9	The student shall have the ability to recognize the impact of knowledge and understanding of the scientific principles on the responsibilities relevant to the professional scientific
PLO 10	practices and apply the fundamental and specialized knowledge of the discipline to own start ups or professional practice. Ability to make decisions on the basis of rigorous and
PLO 11	The student shall have the ability to develop a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude. Ability to engage in
PLO 12	The student shall have the ability to demonstrate knowledge and understanding of the Scientific principles and apply these to one's own work, as a member and leader in a team,
PLO 13	The student shall have the ability to identify the impact of the nanoscience & nanotechnology solutions in societal and environmental contexts, and demonstrate the

5.12.6 Programme Operational Outcomes

1. Programme of Bachelor of Technology + Master of Technology (Nanotechnology) will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students.
2. The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements.
3. The students of Programme of Bachelor of Technology + of Master of Technology (Nanotechnology) will graduate in timely manner.
4. Programme of Bachelor of Technology + Master of Technology (Nanotechnology) shall maintain appropriate academic facilities and technological Resources for teaching and learning.
5. The students of Programme of Bachelor of Technology + Master of Technology (Nanotechnology) will participate in Co Curricular and Extra Curricular activities.
6. Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge.
7. The Programme of Bachelor of Technology + Master of Technology (Nanotechnology) will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff.
8. Programme of Bachelor of Technology + Master of Technology (Nanotechnology) will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure.
9. Programme of Bachelor of Technology + Master of Technology (Nanotechnology) will be continuously engaged in developing/ reviewing processes, policies and systems to achieve prestigious accreditations from various national, international bodies and ranking bodies.

10.	Programme of Bachelor of Technology + Master of Technology (Nanotechnology) will develop and maintain strong relationship with corporate and support all the students for quality placements or join family business or start their own venture.

5.12.7 Assessment Instruments for Programme Learning Outcomes	**Performance Objectives (Targets/Criteria)**
Direct Measures:	
1. Comprehensive Exam 1.1. List of Outcomes assessed by this Measure: i. PLO1 to PLO12	80% students shall pass the exam
2. Viva Voce 2.1. List of Outcomes assessed by this Measure: i. PLO1 ii. PLO2 iii. PLO4	80% students shall pass the exam
3. Course-embedded assignments 3.1. List of Outcomes assessed by this Measure: i. PLO2 ii. PLO3 iii. PLO4 iv. PLO5 v. PLO6	100% students will undertake and complete the course
4. Practical / Internship evaluations 4.1. List of Outcomes assessed by this Measure: i. PLO2 ii. PLO3 iii. PLO4 iv. PLO5 v. PLO6 vi. PLO9 vii. PLO11	100% students will undertake and complete the course
5. Thesis or Dissertation Projects 5.1. List of Outcomes assessed by this Measure: i. PLO2 ii. PLO3 iii. PLO4 iv. PLO5 v. PLO6 vi. PLO9 vii. PLO11	100% students will undertake and complete the course

6. End Semester Examinations 6.1. List of Outcomes assessed by this Measure: i. PLO1 ii. PLO2 iii. PLO4	80% students shall pass the exam
7. Behavioral Observations 7.1. List of Outcomes assessed by this Measure: i. PLO4	80% students should secure a grade 6 and above on a 10 point scale in a journal for success componentof behavioural science course.
8. Plagiarism check 8.1. List of Outcomes assessed by this Measure: i. PLO8	100% students are checked for plagiarism in NTCC report submissions and are allowed to appear for Viva -voce upon obtaining plagiarism % below 15%
9. Scoring Rubrics 9.1. List of Outcomes assessed by this Measure: i. PLO1 ii. PLO2	50% students should secure a grade of 6 and above on a 10 point scale.
Indirect Measures:	
1. Curriculum and Syllabus Analysis 1.1 List of Outcomes assessed by this Measure: i. PLO1 - PLO8	80% students response range between 4-5 on the likert scale in the survey
2. Exit Interviews 2.1 List of Outcomes assessed by this Measure: i. PLO12	80% students response range between 4-5 on the likert scale in the student exit survey
3. External Reviewers 3.1 List of Outcomes assessed by this Measure: i. PLO12	Student should obtain 7 or above on likert's scale in industry feedback.
1. Alumni Surveys 4.1 List of Outcomes assessed by this Measure: i. PLO9	80% of students reponse range between 3-5 on the likert scale in the student Alumni survey.

Summary of Results from Implementing Direct Measures of PLOs:	**Performance Target Was…**	
	Met	**Not Met**
Comprehensive Exam		Not Met

Viva Voce	Met	-
Course-embedded assignments (e.g. Class Tests, Home Assignments, Quiz, Seminar, Term Paper , Presentations)	Met	-
Practical / Internship evaluations	Met	-
Thesis or Dissertation Projects	Met	-
End Semester Examinations	Met	-
Behavioral Observations	Met	-
Plagiarism check	Met	-
Scoring Rubrics	Met	-
Summary of Results from Implementing Indirect Measures of PLOs:	Performance Target Was…	
	Met	Not Met
Curriculum and Syllabus Analysis	Met	
Exit interviews	Met	
External Reviewers	Met	
Alumni Survey	Met	

5.12.8 Mapping of Assessment Measures to Intended Student Learning Outcomes

Assessment Tools / Programme Learning Outcomes	Direct									Indirect			
	re si e Examinations	Viva Voce	rse-e e e assignments	ti /I t s i evaluations	ss iss t ti Projects	t Examinations	Behavioral Observations	Plagiarism check	Scoring Rubrics	ll s i l Analysis	Exit Interviews	External Reviewers	Alumni Surveys
PLO1	X	X				X			X	X			
PLO2	X	X	X	X	X	X			X	X			

PLO3			**X**	**X**	**X**				**X**	**X**		
PLO4	**X**	**X**	**X**	**X**	**X**	**X**				**X**		
PLO5	**X**		**X**	**X**	**X**					**X**		
PLO6	**X**		**X**	**X**	**X**					**X**		
PLO7	**X**									**X**		
PLO8	**X**						**X**	**X**		**X**		
PLO9	**X**			**X**	**X**	**X**						
PLO10	**X**											
PLO11	**X**			**X**	**X**							
PLO12	**X**										**X**	**X**

5.13. B.Sc.(Hons)Agriculture

5.13.1 Programme Mission:

To provide education at graduatelevel is the futuristic and emerging frontier areas of knowledge , learning and research and todevelop 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

5.13.2 Programme Operational Objectives/ Goals

- **Create** appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students
- **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
- **Demonstrate** sensitivity to the diverse needs of students and accordingly develop facilities and services.
- Continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
- Continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.
- **Arrange all necessary** support system for the students to facilitate campus recruitment, higher education or starting their own ventures.
- **Act** ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
- **Create** opportunities for international exposure for its students and faculty.

5.13.3 Programme Educational Objectives

1 : Students shall be able to Demonstrate fundamental knowledge and skills of plant growth, soil fertility & Natural Resource Management.

2 : Students shall be able to integrate basic theory, practicum & teaching practice, in making effective decisions by understanding the relationship of agricultural and food issues with global environment.

3 : Students shall be able to construct effective educational understanding of agricultural and rural sector problems with utilization of latest Information Technology.

4 :Students shall be able to classify when and how to use appropriate teaching skills & techniques for successful and productive careers or advance studies/research in the field of Agriculture Sciences

5 : Students shall be able to demonstrate useful communication and behavioral skills in crop production & protection practices.

6 : Students shall be able to demonstrate effective teaching & practical skills while participating and contributing to the farming community in particular and society in general

7 : Students shall be able to develop positive problem solving approach and leadership skills that support and enhance individual's performance and bridge the gap.

8 : Students shall be able to act ethically and responsibly as an individual/ team member/ leader in diverse teams

9 : Students shall be able to critically evaluate and reflect learning and development throughout their career

5.13.4 Programme Learning Outcomes

PLO 1 : Student will acquire Agricultural concepts, understanding of Agricultural Production Systems and its marketing at National and International level for effective exploration of concepts, theories and skill.to support the farmers and other stakeholders of the community.

PLO 2 : Student will use basic mathematics, budgeting and financial management skills to analyze critical agricultural issues patiently, to evaluate the source of information using quantitative and qualitative research techniques and develop effective solutions to intricate problems.

PLO 3 : Student will find solutions to bridge the communication gap with farming community using Information & Communication Technology and be able to diffuse innovations and information to end users along with transfer of Agricultural Technologies.

PLO 4 : Student will demonstrate the ability to apply theoretical knowledge that will lead to development of
new ideas, methods, techniques, practices, products and services in a variety of contexts (technology, commerce, social systems) and will promote collaborations between academia & Industry as well as facilitate
cultivation of core values of the university and ethical conduct amongst students, scholars, staff and faculty.

PLO 5 : Student will be able to develop and design effective communication methods and materials targeted predominantly for easy comprehension by farming community and communicate proficiently, in oral, written, presentation, information searching and listening skills. Be assertive and articulate, be able to negotiate responsibly and persuade others effectively.

PLO 6 : Student will develop the capacity to think independently, exercise personal judgment and take initiatives. Originality and creativity in formulating, evaluating and applying evidence-based solutions and arguments.

PLO 7 : Student will make a meaningful and positive contribution to society, be ethical and visionary leaders who can show leadership in different contexts. Valuing human diversity in resolving complex situations.

PLO 8 : Student will be able to demonstrate a critical understanding of environmental, economic, social and ethical factors related to plant and animal-derived food and fiber production nationally and Internationally. Learn to appreciate diversity and equality, demonstrate ethical behaviors at all situations.

PLO 9 : Student will be ntrepreneurial, industrious and be able to recognize opportunities; turn them into ideas for enterprises. One shall have business acumen and display basic business skills. Able to identify, plan, develop & execute opportunities within the disciplines of Agricultural Domain.

PLO 10 : Student will understand the value of industry and professional networks and their importance to self-reliance, lifelong learning and career progression.

5.13.5 Assessment Instruments for Programme Learning Outcomes (BPE)	Performance Objectives (Targets/Criteria)
Direct Measures:	
1. Direct Measure 1 : **Comprehensive Examination** 1.1. List of Outcomes assessed by this Measure: i. PLO 1 ii. PLO 2 iii. PLO 3 iv. PLO 4 v. PLO 5 vi. PLO 6 vii. PLO 7 viii. PLO 8 ix. PLO 9 x. PLO10	Objective (Target/Criterion) for Direct Measure 1 : **80% of the students shall be able to pass the examination.**
2. Direct Measure 2 : Industry **Intership** 2.1 List of Outcomes assessed by this Measure: i. PLO 2 ii. PLO 8	Objective (Target/Criterion) for Direct Measure 2 : **80% students will be able to undertake and complete the Industry Internship**
3.Direct Measure 3 : **Rubrics** 3.1 List of Outcomes assessed by this Measure: i. PLO 2 ii.PLO 5 iii PLO 6 iv PLO 7 v PLO 8	Objective (Target/Criterion) for Direct Measure 3 **: 80% students shall be able to pass examination.**

Indirect Measures:		
1. Indirect Measure 1 : **Student Exit Survey** 1.1. List of Outcomes assessed by this Measure: i. PLO 1 ii. PLO 2 iii. PLO 3 iv. PLO 4 v. PLO 5 vi. PLO 6 vii. PLO 7 viii. PLO 8 ix. PLO 9 x. PLO10	Objective (Target/Criterion) for Indirect Measure 1 : **80% students' response range between 3-5 on the Likert Scale in the Student Exit Survey**	
2. Indirect Measure 2 : **Feedback Industry Internship Guide** 2.2 List of Outcomes assessed by this Measure: i. PLO 2 ii. PLO 8	Objective (Target/Criterion) for Indirect Measure 2 : **The Industry Internship Guide rates the students**.	
3.Indirect Measure 3 : **Alumni Survey** 3.3 List of Outcomes assessed by this Measure: i. PLO 1 ii. PLO 2 iii. PLO 3 iv. PLO 4 v. PLO 5 vi. PLO 6 vii. PLO 7 viii. PLO 8 ix. PLO 9 x. PLO10	Objective (Target/Criterion) for Indirect Measure 3 : **80% students' response range between 3-5 on the Likert Scale in the Student Exit Survey**	
Summary of Results from Implementing Direct Measures of PLOs:	**Performance Target Was…**	
	Met	Not Met
Direct Measure 1 : **Comprehensive Examination**	***Met***	
Direct Measure 2 : **Industry Internship**	***Yes***	
Direct Measure 3 : **Rubrics**	***Yes***	
Summary of Results from Implementing Indirect Measures of PLOs:	Performance Target Was…	
	Met	Not Met
Indirect Measure 1 ; **Student Exit Survey**	*Met*	
Indirect Measure 2 : **Feedback Industry Internship Guide**	***Met***	
Indirect Measure 3 : **Alumni Survey**	*Met*	

5.13.6 Mapping of Assessment Measures to Intended Student Learning Outcomes of BPE

Assessment Tools / Programme Learning Outcomes (example)	si e Exam	I st Internship	Rubrics	I str Internshp Guide	t t it Survey	Alumni Survey
PLO 1 : Student will acquire Agricultural concepts, understanding of Agricultural Production Systems and its marketing at National and International level for effective exploration of concepts, theories and skill.to support the farmers and other stakeholders of the community	X				X	X
PLO 2 : Student will use basic mathematics, budgeting and financial management skills to analyze critical agricultural issues patiently, to evaluate the source of information using quantitative and qualitative research techniques and develop effective solutions to intricate problems	X	X		X	X	X
PLO 3 : Student will find solutions to bridge the communication gap with farming community using Information & Communication Technology and be able to diffuse innovations and information to end users along with transfer of Agricultural Technologies.	X				X	X
PLO 4 : Student will demonstrate the ability to apply theoretical knowledge that will lead to development of new ideas, methods, techniques, practices, products and services in a variety of contexts (technology, commerce, social systems) and will promote collaborations between academia & Industry as well as facilitate cultivation of core values of the university and ethical conduct amongst students, scholars, staff and faculty..	X				X	X
PLO 5 : Student will be able to develop and design effective communication methods and materials targeted predominantly for easy comprehension by farming community and	X		X		X	X

communicate proficiently, in oral, written, presentation, information searching and listening skills. Be assertive and articulate, be able to negotiate responsibly and persuade others effectively						
PLO 6 : Student will develop the capacity to think independently, exercise personal judgment and take initiatives. Originality and creativity in formulating, evaluating and applying evidence-based solutions and arguments.	**X**		**X**		**X**	**X**
PLO 7 : Student will make a meaningful and positive contribution to society, be ethical and visionary leaders who can show leadership in different contexts. Valuing human diversity in resolving complex situations.	**X**		**X**		**X**	**X**
PLO 8 : Student will be able to demonstrate a critical understanding of environmental, economic, social and ethical factors related to plant and animal-derived food and fiber production nationally and Internationally. Learn to appreciate diversity and equality, demonstrate ethical behaviors at all situations.	**X**	**X**		**X**	**X**	**X**
PLO 9 : Student will be ntrepreneurial, industrious and be able to recognize opportunities; turn them into ideas for enterprises. One shall have business acumen and display basic business skills. Able to identify, plan, develop & execute opportunities within the disciplines of Agricultural Domain.	**X**				**X**	**X**
PLO 10 : Student will understand the value of industry and professional networks and their importance to self-reliance, lifelong learning and career progression.	**X**				**X**	**X**

5.14 MBA (A & FB)

5.14.1 Programme Mission:

To provide education at postgraduate level for 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 yearningfor perfection and imbibe attributes of courage of conviction and action

5.14.2 Programme Operational Objectives/ Goals

- **Create** appropriate teaching learning resources, infrastructure and conducive environment for excellence in teaching, learning, research and professional development of students
- **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
- **Demonstrate** sensitivity to the diverse needs of students and accordingly develop facilities and services.
- Continuously strive **to build** strong industry interaction, alumni networks and empanelment of expertise from industry.
- Continually **improve** the quality of facilities, services, resources and processes with an aim to attain **national** and international accreditations and institutional ranking.
- **Arrange all necessary** support system for the students to facilitate campus recruitment, higher education or starting their own ventures.
- **Act** ethically to ensure transparency and good governance **while discharging** various responsibilities to its stakeholders and execution of policies and programs
- **Create** opportunities for international exposure for its students and faculty.

5.14.3 Programme Educational Objectives

1 Demonstrate fundamental knowledge and skills of Agribusiness & food business and its subsectors.

2 Integrate basic theory, practicum & teaching practice, in making effective decisions by understanding the relationship of agricultural and food issues with global environment.

3 Construct effective educational understanding of agricultural and rural sector education with utilization of latest Information Technology

4 Classify when and how to use appropriate teaching skills & techniques in the field of Agri and food business

5 Demonstrate useful communication and behavioral skills in Agri and food business practices

6 Demonstrate effective teaching & practical skills while participating and contributing to the farming community in particular and society in general.

7 Develop positive problem solving approach and leadership in the field of Agri and food business.

8 Develop professional ethics and academic integrity and demonstrate these as an individual/ team member/ leader in diverse teams

-9 Critically evaluate and reflect learning and development throughout their career.

Assessment Instruments for Programme Learning Outcomes	Performance Objectives (Targets/Criteria)
Direct Measures:	
1. Direct Measure 1 **: Comprehensive Examination** 1.1. List of Outcomes assessed by this Measure: i PLO 1 ii PLO 2 iii PLO 3 iv PLO 4 v PLO 5 vi PLO 6 vii PLO 7 viii PLO 8 ix PLO 9 x PLO 10	Objective (Target/Criterion) for Direct Measure 1 : **80% of Students shall be able to pass examination**

2. Direct Measure 2 **: Industry Intership/ Dissertation**
4.2 List of Outcomes assessed by this Measure:

i. PLO 2
ii. PLO 8

Objective (Target/Criterion) for Direct Measure 2 : **80% of Students shall be able to pass examination**

3.Direct Measure 3 : **Ruberics**
2.1 List of Outcomes assessed by this Measure:

i. PLO 5
ii. PLO 6
iii. PLO 7

Objective (Target/Criterion) for Direct Measure 3 : **80% of Students shall be able to pass examination**

Indirect Measures:

1. Indirect Measure 1 : **Student Exit Survey**
1.1. List of Outcomes assessed by this Measure:

i) PLO 1
ii) PLO 2
iii) PLO 3
iv) PLO 4
v) PLO 5
vi) PLO 6
vii) PLO 7
viii) PLO 8
ix) PLO 9
x) PLO10

Objective (Target/Criterion) for Indirect Measure 1 : **80% student's response range between 3-5 on the Likert Scale in the Student Exit Survey**

2. Indirect Measure 2 : **Alumni Survey**
3.4 List of Outcomes assessed by this Measure:

i. PLO 1
ii. PLO 2
iii. PLO 3
iv. PLO 4
v. PLO 5
vi. PLO 6
vii. PLO 7
viii. PLO 8
ix. PLO 9
x. PLO 10

Objective (Target/Criterion) for Indirect Measure 3 : **80% students response range between 3-5 on the Likert Scale in the Student Exit Survey.**

4 Indirect Measure 3 : Feedback of External Guide
4.1 List of Outcomes assessed by this Measure:

i) PLO 2
ii) PLO 8

Objective (Target/Criterion) for Indirect Measure 3 : **100% students response range between 3-5 on the Likert Scale in the Student Exit Survey.**

Summary of Results from Implementing Direct Measures of PLOs:

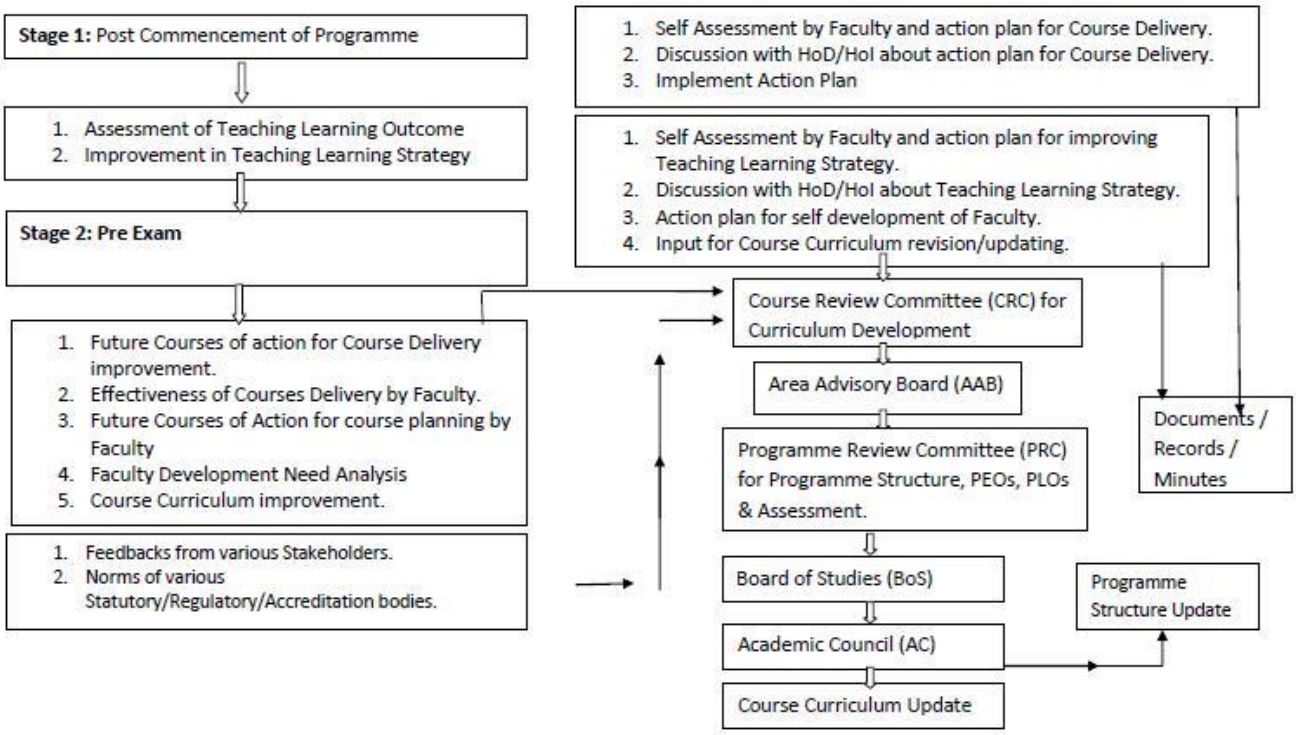
Comprehensive	*Yes*
Industry Internship/Dissertation	*Yes*
Rubrics	*Yes*
Summary of Results from Implementing Indirect Measures	
nce Target Was… **of PLOs:**	Performa Not Met
Student Exit Survey	*Yes*
Alumni Survey	*Yes*
Feedback from External Guidet	

Domain Operational Outcomes & Operational Outcome Plan

Operational Outcomes for Science & Technology Domain:

1.	DST will encourage faculty to use appropriate methodology and pedagogical tools for teaching, learning and development of students.
2.	The curriculum is contemporary, developed in collaborative consultation with all the stakeholders, benchmarked with global standards and relevant to the industry requirements.
3.	The students of DST will graduate in timely manner.
4.	DST shall maintain appropriate academic facilities and technological Resources for teaching and learning.
5.	The students of DST will participate in Co Curricular and Extra Curricular activities.
6.	Faculty will be engaged in scholarly and professional activities in order to enhance their competencies and to contribute to the existing Body of Knowledge.
7.	The DST will integrate ethics and values in teaching, theory and practice, develop and retain excellent students, faculty and staff.
8.	DST will facilitate joint research collaborations; invite international delegates and speakers for seminars and conferences and various other opportunities for global exposure.
9.	DST will be continuously engaged in developing/ reviewing processes, policies and systems to achieve prestigious accreditations from various national, international bodies and ranking bodies.
10.	DST will develop and maintain strong relationship with corporate and support all the students for quality placements or join family business or start their own venture.

VII. Linkage of Outcomes Assessment with Strategic Planning



APPENDICES

8.1 Format of Assesment Tools:

8.1.1 Rubrics for Behavioural Science (UG – 3 Year Programme)

Assessment Tool-UG/PLO6/BS/ BEHAVIOURAL SCIENCE

AMITY UNIVERSITY
UTTAR PRADESH

Faculty ofScience &Technology

GUIDELINE FOR RUBRICS FOR ASSESMENT OF LEARNING OUTCOMES OF BEHAVIOURAL SCIENCE COURSE FOR 3 YEAR B.Sc. PROGRAMMES

Assessment Parameters:

- *Leadership skills*
- *Interpersonal skills*
- *Team spirit*
- *Impression Management*
- *Good Character and Value based Behavior*
- *Learning for Excellence*
- *Stress Management*
- *Conflict management*
- *Lifelong learning*

SCORING:

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

TOOLS USED FOR ASSESSMENT:

- Social Awareness Programme
- Journal of Success (JOS)
- Participation and Interaction in the class
- Psychometric assessment
- Participation in various extra-curricular & co-curricular activities

COMPOSITION OF ASSESSMENT BOARD

- Behavioral Science Faculty
- Program Leader/ Program Co-coordinator
- One Core Faculty

SCORE SHEET: INDIVIDUAL

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

SCORE SHEET :PROGRAMME/ BATCH

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

Behavioral Science – UG

Name:_____ Enrolment No.:_____
Programme:_____

S.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.	

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

Signature of BS Faculty Leader | Signature of Core Course Faculty | Signature of Programme

8.1.2 Assesment Tool & Rubrics For Business Communication –UG 3 Year Programme

Assessment Tool-UG/PLO 05/BS/ BUSINESS COMMUNICATION

Amity University, Uttar Pradesh
Amity Institute of English Studies and Research

RUBRICS FOR BUSINESS COMMUNICATION- UG

THE THREE ASPECTS OF BUSINESS COMMUNICATION-VERBAL COMMUNICATION INCLUDING ORAL AND WRITTEN COMMUNICATION AND NON-VERBAL COMMUNICATION HAS BEEN DEALT WITH IN THE RUBRICS.

OBJECTIVES: The objective is to enable receivers to

(i) develop information and understanding,
(ii) discourage misinformation, ambiguity,
(iii) encourage social relations and
(iv) develop proficiency in varied forms of communication.

Components	**Unsatisfactory**	**Intermediate**	**Satisfactory**	**Proficient**	**Distinguished**
Content (Collection & Organisation)	• Learner fails to adhere to guidelines • Inability of students and improper usage of poorly selected resources	• Learner collects and organizes content as per instructions • Ability of students to select resources and derive content as per the subject	• Learner collects and organizes content as per instructions and improves on it. • Increased ability of students to select resources and derive content as per the subject	• Collection and organisation of content is innovatively done as per the given time frame/ duration • Efficiency of students in identifying and acknowledging resources is evident	• Perfect and unique collection and organization of content • Proficiency of students in identifying and acknowledging resources

Presentation & Delivery	• Incapability of learner to initiate • Halting and mumbling delivery with forced pauses and weak conclusions	• Adequate initiation of presentation by the learner • Improved presentation with adequate conclusion	• Increased ability of learner to coherently initiate the presentation • Fluent presentation with satisfactory conclusion	• Impressive opening of the argument by the learner • Efficient oratory with confident rhetoric and apt conclusion	• Capability of a confident and suave initiation • Fluent oratory with persuasive rhetoric and apt conclusion
Linguistic Accuracy (Pronunciation, Articulation, Intonation, Diction)	• Improper usage of scientific terms and inappropriate grammar and accent • Intonation is not always correct	• Comparatively better usage of scientific terms and better grammar and accent, with some exceptions • Intonation is more or less correct	• Usage of appropriate grammar and accent, with some exceptions • Intonation is correct	• Usage of appropriate accent & grammar • The intonation is accurately used	• Perfection in usage of grammar, accent and diction. • Intonation is capable of delivering the desired meaning.
Extemporaneity	• Inability of learner to fathom audience reaction • Ineffective handling of barriers/communication aids	• Student falls short of managing the audience perfectly • Inappropriate control of barriers/ communication aids	• Perfect management of audience by the learner • Appropriate control of barriers/communication aids	• Switching the presentation style according to the audience response • Effective handling of barriers/communication aids	• Perfection in presentation style and adept handling of audience response • Adequate and efficient handling of barriers/communication aids
Non-Verbal Communication (KOPPACT)	• Student demonstrates inappropriate body language • Erratic eye contact discomforts the audience	• Student delivers increasingly appropriate postures, gestures and facial expressi	• Student delivers appropriate postures, gestures and facial expressions	• Student carries near perfect postures, gestures &facial-expressions • Empathetic eye contact with the listeners is	• Student carries perfect body language • Sensible and empathetic eye contact with the listeners is maintained. • Tone, pitch

	• Paralinguistic aspects are not compatible with the spoken word • Inadequate understanding of visual codes	ons • Eye contact is often with disruptions • Enhanced compatible delivery of spoken words and unspoken signals • Increased proficiency in comprehension of visual codes	• Eye contact is often with seldom disruptions • Compatible delivery of spoken words and unspoken signals • Developing proficiency in comprehension of visual codes	maintained, as required • Tone of voice, pitch and tempo are complementary • Developed proficiency in understanding and comprehension of visual codes.	and tempo complement the message • Proficiency in understanding and comprehension of visual codes
Rapport with the receiver	• Responsiveness to audience is inadequate • Disinterestedness is articulated in words and manners	• Generally responsive • Interest is articulated in words and manners	• Increasingly responsive • Enhanced identification with the audience in words and manners	• Learner maintains responsiveness towards the audience • Empathy is articulated in words and manners	• Perfection in responsiveness towards the audience • Increased empathy is articulated in words and manners
Content of Written Communication	• Inability to understand simple texts • Unorganized content with unclear beginning and inappropriate ending.	• Skillful enough to comprehend simple texts • Developing simple content with relevant minor and major supporting details	• Skilled to comprehend complex texts • Developing structurally complex and apt content	• Developed acumen in immediacy and economic feasibility in writing • Proficiency in developing content	• Expertise in comprehension and feasibility in all aspects of writing • Efficiency, flexibility and accuracy in developing content

Grammar	• Incorrect usage of the basic grammar items like tense, voice change and narration etc. • Incoherent short paragraphs	• Developed and increasingly correct usage of simple grammatical items • Framing simple sentences accurately	• Increasingly correct usage of complex grammatical items • Framing complex and compound sentences accurately	• Structurally correct in business writing • Relevant use of technical terms and efficiency in using functional grammar	• Semantically and structurally correct in business writing • Coherent and relevant use of jargons and plain English in functional grammar
Expression: Syntactic, Semantic and Lexical	• Incapability to frame semantically correct sentences and paragraphs. • Inaccurate sentence structures with lexical ambiguity	• Ability to form accurate and semantically relevant sentences and paragraphs. • Less clarity in thought and expression	• Ability to form syntactically accurate and semantically relevant sentences and paragraphs. • Clarity in thought and expression	• Accurate style, form and originality in writing paragraphs • Writing effective e-mails, reports, articles and drafting Policies	• Appropriate and perfect style and creativity in writing • Effective and efficient writing of all technical documents
Critical Thinking	• Inability to identify arguments • Very little knowledge of evaluating them.	• Ability of argument identification • Analyzing and evaluating texts	• Enhanced ability of identification of arguments • Assessing and evaluating texts	• Persuasive writing • Expository writing	• Proficiency of persuasive writing with confidence • Analyzing and assessing texts criticall

					y and logicall y
Creativity	• Lack of sense of achieving delight and understan ding literature. • Lack of respect and admiration for creative skills.	• Developi ng a creative bent of mind • General interest and admirati on for creative skills	• Incorpo ration of creativit y in writings • Aspirin g to be creative in all works	• Writin g short stories with compl ex plots, develo ping cases, Featur e writing • Writin g a busine ss plan, screen writing , writing telescri pts etc.	• Creatin g and evaluati ng original literary works, • Framin g original literary content and ability to write accordi ng to the situatio n, i.e. fiction writing and emotive writing
Contextua l Writing	• Inability to identify the context of writing • No skill to describe the theme with precision.	• Identific ation of formal and informal context • Developi ng impactfu l content	• Increase d identific ation of formal and informa l context • Develo ped content which is original	• Case based writing , Abstra ct and Synop sis writing , Thesis writing • Origin ality and impact ful creatio n of conten t	• Analysi s and constru ctive criticis m of works • Use of good rhetoric , genre and design in differen t professi onal writing

(v) be capable of using scientific terms

8.1.3 Rubrics for Foreign Business Language – UG

Assessment Tool-UG/PLO 07/D/FBL

AMITY UNIVERSITY
UTTAR PRADESH

FACULTY OF SCIENCE & TECHNOLOGY

RUBRICS FOR ASSESMENT OF FOREIGN BUSINESS LANGUAGE FOR UNDER GRADUATE

PROGRAMME

Assessment Parameters:

- *Language*
- *Culture*
- *Pronunciation*
- *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
- If the student's performance is 1 **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

SCORE SHEET: INDIVIDUAL

If the student scores between	Outcome Attainment Levels
<12	Needs improvement
12-16	Satisfactory
17-20	Partly Achieved
21-24	Fully Achieved

SCORE SHEET: PROGRAMME/ BATCH

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

	Foreign Business Language – UG **Name:_____ Enrolment No.:_____** **Programme:_____**						
S.NO.	**Attributes Marks**	**Unsatisfactory (0)**	**Needs improvement (1)**	**Satisfactory (2)**	**Proficient (3)**	**Distinguished (4)**	**Score**
1.	**Initiation/ Introduction**	Students hardly understand the concepts.	Student rarely takes initiative & asks questions.	Student is able to understand and utilize relevant study material.	Student willingly participates in class. Asks questions and speaks extemporaneously.	Student shows great curiosity in class activities & immediately responds with the precise answer.	
2.	**Grammatical structure**	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.	
3.	**Vocabulary**	Uses limited vocabulary and mispronunciations hinder 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 theme.	Uses variety of vocabulary as per the context. Has good command over expressions.	

4.	**Conversation**	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.	**Pronunciation**	Incomprehensible to a native speaker	Nearly incomprehensible to a native speaker	Partially comprehensible to a native speaker	Mostly comprehensible to a native speaker	Completely comprehensible to a native speaker	
6.	**Cultural Appropriateness**	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.	
						Total Score	

If the student scores between	Outcome Attainment Levels
<12	Needs improvement
12-16	Satisfactory
17-20	Partly Achieved
21-24	Fully Achieved

SIGNATURES:

8.1.4 Rubrics for Foreign Business Language - PG

Assessment Tool-PG/PLO 07/D/FBL

AMITY UNIVERSITY
UTTAR PRADESH

FACULTY OF SCIENCE AND TECHNOLOGY

RUBRICS FOR ASSESMENT OF FOREIGN BUSINESS LANGUAGE FOR MATERS PROGRAMME

Assessment Parameters:

- *Language*
- *Culture*
- *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

SCORE SHEET: INDIVIDUAL

If the student scores between	Outcome Attainment Levels
<10	Needs improvement
10-13	Satisfactory
14-16	Partly Achieved
17-20	Fully Achieved

SCORE SHEET: PROGRAMME/ BATCH

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

	Foreign Business Language - PG Name:_____ Enrolment No.:_____ Programme:_____						
	Attributes	**Unsatisfactory (0)**	**Needs improvement (1)**	**Satisfactory (2)**	**Proficient (3)**	**Distinguished (4)**	**Score**
1.	**Initiation/ Introduction**	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.	**Vocabulary**	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.	**Grammatical structure**	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.	**Conversation**	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.	**Cultural Appropriateness**	Rarely uses/interprets cultural manifestations.	Sometimes uses/interprets cultural manifestations	Frequently uses/interprets cultural manifestatio	Almost always uses /interprets cultural	Has in-depth knowledge about other	

			when appropriate to the task.	ns when appropriate to the task.	manifestations when appropriate to the task.	countries culture & other perspective s.	
						Total Score	

If the student scores between	Outcome Attainment Levels
<10	Needs improvement
10-13	Satisfactory
14-16	Partly Achieved
17-20	Fully Achieved

SIGNATURES:

8.1.5: Feedback of Industry Internship Guide:

Assessment Tool-UG/PLO 08/FIIG/ Feedback of Industry Internship Guide

AMITY UNIVERSITY
UTTAR PRADESH

Domain of Science& Technology

Class of ---------

SUMMER TRAINEE EVALUATION FORM
(Industry Guide Feedback)

Dear Sir / Madam,

Our Student_____Enroll. No._____Class of **M.Sc. (_____) 20__** has undergone ___ weeks summer Internship under your able guidance in your esteemed organization. We would request you to evaluate the student on a number of attributes, which will help us in developing the efficiency of the concerned student as per the industry needs. Further, your valuable feedback would also help us make the necessary improvement in the Program.

The evaluation will be on a scale of 10 points, 10 being highest and 1 being lowest.

10	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
Outstanding	Excellent	Very Good	Good	Above Avg.	Avg	Below Average	Needs Improvement	Poor	very poor

Project Title: _____

Date of Commencement: _____Date of Completion: _____

Name of Industry Guide: _____

Designation:_____

Company's Name and Address :____

Project Evaluation

Scale 1 to 10

S.no •	Name of the student	Enrollment Number	Understanding of the Project Objectives		Problem Definition	Planning Ability	Execution Ability	Use of tools and techniques	Presentation ability	Initiative	Resourcefulness	Quality of work	Result Orientation	Creativity and Innovation	Technical knowledge related to the Project	Keeping deadlines	Overall evaluation of Project
			Theoretical Knowledge needed to do the project.	Effort made in applying his/her knowledge	Understanding the scope and limitation of the Project	Ability to plan, research schedules and resources											

Personality Evaluation

Scale 1 to 10

S.no.	Name of the student	Enrollment Number	Intelligence & Comprehension	Diligence & Perseverance	Co-operation (Ability to work with others)	Leadership (Mobilise Support)	Communication	Oral	Written	Integrity and Loyalty	Decorum	Over all Personality

8.1.6 Rubrics for Major Project

Assessment Tool-PG/PLO 02/D/Major Project

AMITY UNIVERSITY
UTTAR PRADESH

DOMAIN OF SCIENCE AND TECHNOLOGY

RUBRICS FOR ASSESMENT OF MAJOR PROJECT M.Sc. PROGRAM

Assessment Parameters:

- *Analyze*
- *Conceptualize*
- *Scientific Concepts Applied*
- *Demonstrate*
- *Innovation*

SCORING:

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

TOOLS USED FOR ASSESSMENT:

- Hardware / Software
- Report writing
- Analytical results
- Presentations
- Viva-Voce

COMPOSITION OF ASSESSMENT BOARD

- External Expert (Industry/ Academia)
- Dissertation Guide
- Faculty member

SCORE SHEET: INDIVIDUAL

If the student scores between	Outcome Attainment Levels
<35	Needs improvement
35-45	Satisfactory
46—60	Partly Achieved
61-80	Fully Achieved

SCORE SHEET : MSc (AC)/2013-2015

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

		MAJOR PROJECT M.Sc. PROGRAM			
Name:_____		**Enrolment No.:_____**		**Course:_____**	
S.No	**Trait**	**Deficient**	**Sufficient**	**Competent**	**Exemplary**	**Score**
		(1)	**(2)**	**(3)**	**(4)**	
1.	Identification of the main Scientificproblem /	Student fails to identify the main problem .	Student is Somewhat is able to identify the problem.	Student substantially identifies the main problem	Student comprehensively & Precisely can identify the main scientific problem	
2.	Identification of the key assumptions binding the problem and their effect	Student fails to identify the main assumptions and their effect on the problem	Student is somewhat able to identify the assumptions and their effect.	Student substantially identified the assumptions and can understand its effect	Student identifies all key assumptions and its effect s precisely and totally understand its effect.	
	Literature Review					
3.	Critically reviews literature; contrast and compares relevant debates, concepts and Theories	Student fails to identify the relevant literature, and unable to compare and contrast the concepts and theories.	Student is somewhat able to identify the relevant literature, and unable to compare and contrast the concepts and theories.	Student substantially identifies the key and relevant literature, and was able to compare and contrast the concepts and theories for the scientific problem.	Student identifies all the key the relevant literature, and was able to develop the concepts and theories, surrounding a Scientific problem.	
4.	Corroborates literature and the dissertation requirements clearly and can link it to the objectives .	Student fails to clearly link literature to objectives;	Student is somewhat able to clearly link literature to	Student substantially links literature to objectives;	Student identifies and corroborates relevant links through literature to objectives;	

Methodology / Methods / Approach						
5.	Incorporation of methodological approach in relation to research analysis ,design of experiments and Objectives.	Student fails to incorporate methodological approach to be followed with respect to objectives and research design.	Student is somewhat able to incorporate methodological approach to be followed with respect to objectives and research design.	Student is able to incorporate methodological approach in relation to research design and objectives.	Student is able to fully incorporate Methodological approach in relation to research design and objectives and identify relevant links through recent literature surrounding a Scientific problem.	
6.	Justifies appropriateness of analytical procedures / instruments /software for research design and justifies rejection of alternative methods	Student fails to Justifies appropriateness of research design; justifies rejection of alternative methods	Student is somewhat able to Justifies appropriateness of research design and data collection methods; presents reliable and valid data; justifies rejection of alternative methods	Student substantially Justifies appropriateness of research design and justifies rejection of alternative methods	Student identifies relevant links Through literature to objectives; Justifies appropriateness of research design and justifies rejection of alternative methods.	
	Dissertation Outcome					
7.	Evaluation of Dissertation /Research Design.	Student Research Design does not meet the objectives.	Student dissertation /Research Design somewhat meets the objectives	Student Dissertation/ Research Design substantially meets the objectives	Student Research Design completely meets the objectives	
8.	Does the Dissertation results /design demonstrate innovation and are of high Quality ?	Student dissertation results /design fails to demonstrate any innovation and good quality.	Student dissertation result / design satisfactorily demonstrates innovation and quality.	Student dissertation results / design demonstrates good innovation and quality	Student dissertation result / Design demonstrates high innovation and quality	
17909.	Ability to arrive at valid , supported conclusions	Student provides conclusions that are unsupported by the Data	Student is somewhat able to provide conclusions that may be unsupported or supported by the Data	Student provides conclusions that are supported by the data	Student provides conclusions that are supported by the data and demonstrate a deep understanding of the issues involved	

10.	Understanding of the	Student ignores	Student is	Student	Student correctly	
	implications of the	implications from	somewhat able to	demonstrates an	generalizes	
	Conclusions	conclusions or	drive implications	understanding of	conclusions to	
		generalizes beyond	from conclusions or	immediate effects	related areas	
		the scope of	generalizes beyond	of the conclusion	affected by the	
		relevance.	the scope of	drawn.	issues	
			relevance.			
	Presentation of Dissertation					
11.	Logical & Progressive approach				logically and progressively	
		Disorganized approach	Somewhat logically /progressively	organized and well	organized	
			organized	Structured.		
12.		Content is	Content is	Content is relevant	Content is relevant	
	Content	irrelevant or with	somewhat relevant	or with supporting	or with supporting	
		no supporting	but lacks sufficient	evidence	evidence and	
		Evidence	supporting evidence		incorporates	
					innovative insights.	
13.		Presentation was	Presentation was	Presentation	Presentation	
	Timing &	too short or too	somewhat	utilizes allotted	provides excellent	

	conclusion	long , Conclusion missing or content does not support Findings	short/long not covering all the points, Conclusion is somewhat insufficient or content does not support findings	time, Conclusion is supported by content and contain review of key points.	coverage of time, conclusion is supported by content and provides review of key points and stimulates further inquiry with closing thoughts.	
	Written report					
14.	Introduction	Opening not appropriate to problem	Opening somewhat appropriate but does to clearly define problem.	Opening appropriate to problem	Opening is clear , concise, and considerate sets the right tone.	
15.	Organization	Disorganized incorrect format , unclear direction	Somewhat organized, with correct format , but unclear direction	Organized , correct format , clarity of main points	Clear considerate and correct formatting and development of main points	
16.	Content	Incorrect , irrelevant,	Somewhat correct, and relevant,	Relevant and correct with evidence	Relevant and correct with evidence with Innovative insights.	
17	Organization of presentation	Presentation not according to the guidelines	Presentation needs improvement	Presentation was according to the guidelines and well organised.	Excellent and self explanatory presentation	
18	Future Prospects	work is not related to the current scenario	Work is good but needs more modification	Work can be adopted with certain modification	Work is very much related to the current scenario	
19	Collection and representation of data	Not properly collected	Collected but not arranged	Data is very much satisfactory but not properly explained	Data is very well Explained	
20.	Conclusion	Missing content or lack of supporting Evidence	Somewhat conclusive content but lack of supporting evidence	Supports content, contains summary statement	Clear , complete, closing with thought Considerations.	

Total Score

If the student scores between	Outcome Attainment Levels
<35	Needs improvement
35-45	Satisfactory
46-60	Partly Achieved
61-80	Fully Achieved

Signatures:

8.1.7Assesment Tool For Dissertation:

Assessment Tool-PG/PLO 02/D/Dissertation

AMITY UNIVERSITY
UTTAR PRADESH

DOMAIN OF SCIENCE AND TECHNOLOGY

RUBRICS FOR ASSESMENT OF DISSERTATION M.Sc. PROGRAM

Assessment Parameters:

- *Analyze*
- *Conceptualize*
- *Scientific Concepts Applied*
- *Demonstrate*
- *Innovation*

SCORING:

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

TOOLS USED FOR ASSESSMENT:

- Hardware / Software
- Report writing
- Analytical results
- Presentations
- Viva-Voce

COMPOSITION OF ASSESSMENT BOARD

- External Expert (Industry/ Academia)
- Dissertation Guide
- Faculty member

SCORE SHEET: INDIVIDUAL

If the student scores between	Outcome Attainment Levels
<35	Needs improvement
35-45	Satisfactory
46—60	Partly Achieved
61-75	Fully Achieved

SCORE SHEET : PROGRAMME/ BATCH

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

		DISSERTATION M.Sc. PROGRAM				
Name:_____		**Enrolment No.:_____**			**Course:_____**	
S.No	**Trait**	**Deficient**	**Sufficient**	**Competent**	**Exemplary**	**Score**
		(1)	**(2)**	**(3)**	**(4)**	
1.	Identification of the main Scientificproblem /	Student fails to identify the main problem .	Student is Somewhat is able to identify the problem.	Student substantially identifies the main problem	Student comprehensively & Precisely can identify the main scientific problem	
2.	Identification of the key assumptions binding the problem and their effect	Student fails to identify the main assumptions and their effect on the problem	Student is somewhat able to identify the assumptions and their effect.	Student substantially identified the assumptions and can understand its effect	Student identifies all key assumptions and its effect s precisely and totally understand its effect.	
	Literature Review					
3.	Critically reviews literature; contrast and compares relevant debates, concepts and theories	Student fails to identify the relevant literature, and unable to compare and contrast the concepts and theories.	Student is somewhat able to identify the relevant literature, and unable to compare and contrast the concepts and theories.	Student substantially identifies the key and relevant literature, and was able to compare and contrast the concepts and theories for the scientific problem.	Student identifies all the key the relevant literature, and was able to develop the concepts and theories, surrounding a Scientific problem.	

4.	Corroborates literature and the dissertation requirements clearly and can link it to the objectives .	Student fails to		Student is	Student	Student identifies and corroborates	
		clearly link		somewhat able to	substantially links	relevant links	
		literature to		clearly link	literature to	through literature	
		objectives;		literature to	objectives;	to objectives;	

Methodology / Methods / Approach

5.	Incorporation of methodological	Student fails to	Student is	Student is able to	Student is able to
	approach in relation to	incorporate	somewhat able to incorporate	incorporate	fully incorporate
	research analysis ,design of experiments and	methodological		methodological	Methodological
	Objectives.	approach to be	methodological	approach in	approach in
		followed with	approach to be	relation to	relation to research
		respect to	followed with	research	design and
		objectives and	respect to	design and	objectives and
		research design.	objectives and	objectives.	identify relevant
			research design.		links through
					recent literature
					surrounding a
					Scientific
					problem.
6.	Justifies appropriateness of analytical procedures / instruments /software for research design and justifies rejection of alternative methods	Student fails to Justifies appropriateness of research design; justifies rejection of alternative methods	Student is somewhat able to Justifies appropriateness of research design and data collection methods; presents reliable and valid data; justifies rejection of alternative methods	Student substantially Justifies appropriateness of research design and justifies rejection of alternative methods	Student identifies relevant links Through literature to objectives; Justifies appropriateness of research design and justifies rejection of alternative methods.
	Dissertation Outcome				
7.	Evaluation of Dissertation /Research Design.	Student Research Design does not meet the objectives.	Student dissertation /Research Design somewhat meets the objectives	Student Dissertation/ Research Design substantially meets the objectives	Student Research Design completely meets the objectives

		Student dissertation	Student dissertation result / design	Student dissertation	
8.	Does the Dissertation results /design demonstrate innovation and are of high Quality ?	results /design fails to demonstrate any innovation and good quality.	satisfactorily demonstrates innovation and quality.	results / design demonstrates good innovation and quality	
					Student dissertation result / Design demonstrates high innovation and quality
09.	Ability to arrive at valid ,	Student provides	Student is	Student provides	Student provides
	supported conclusions	conclusions that are	somewhat able to	conclusions that	conclusions that
		unsupported by the	provide conclusions	are supported by	are supported by
		Data	that may be	the data	the data and
			unsupported or		demonstrate a
			supported by the		deep
			data		understanding of
					the issues involved
10.	Understanding of the	Student ignores	Student is	Student	Student correctly
	implications of the	implications from	somewhat able to	demonstrates an	generalizes
	conclusions	conclusions or	drive implications	understanding of	conclusions to
		generalizes beyond	from conclusions or	immediate effects	related areas
		the scope of	generalizes beyond	of the conclusion	affected by the
		relevance.	the scope of	drawn.	issues
			relevance.		
	Presentation of Dissertation				
11.	Logical & Progressive Organization of presentation	Presentation is	Presentation is	Presentation is well	Presentation is logically and progressively
		Disorganized	Somewhat logically /progressively	organized and	organized
			organized	Structured.	
12.		Content is	Content is	Content is relevant	Content is relevant
	Content	irrelevant or with	somewhat relevant	or with supporting	or with supporting
		no supporting	but lacks sufficient	evidence	evidence and
		Evidence	supporting evidence		incorporates
					innovative insights.
13.		Presentation was	Presentation was	Presentation	Presentation
	Timing &	too short or too	somewhat	utilizes allotted	provides excellent

	Conclusion	long , Conclusion missing or content does not support Findings	short/long not covering all the points, Conclusion is somewhat insufficient or content does not support findings	time, Conclusion is supported by content and contain review of key points.	coverage of time, conclusion is supported by content and provides review of key points and stimulates further inquiry with closing thoughts.
	Written report				
14.	Introduction	Opening not appropriate to problem	Opening somewhat appropriate but does to clearly define problem.	Opening appropriate to problem	Opening is clear , concise, and considerate sets the right tone.
15.	Organization	Disorganized incorrect format , unclear direction	Somewhat organized, with correct format , but unclear direction	Organized , correct format , clarity of main points	Clear considerate and correct formatting and development of main points
16.	Content	Incorrect , irrelevant,	Somewhat correct, and relevant,	Relevant and correct with evidence	Relevant and correct with evidence with Innovative insights.
17.	Conclusion	Missing content or lack of supporting Evidence	Somewhat conclusive content but lack of supporting evidence	Supports content, contains summary statement	Clear , complete, closing with thought Considerations.

Total Score

If the student scores between	Outcome Attainment Levels
<35	Needs improvement
35-45	Satisfactory
45-60	Partly Achieved
60-80	Fully Achieved

Signatures:

8.1.8 Rubrics for Club Committee Activities

AMITY UNIVERSITY

RubricsforAssessmentofParticipation in Club and Committee Activities

Assessment Parameters:

- Deficient
- Sufficient
- Competent
- Exemplary

SCORING:

- Ifthestudent'sperformanceisDeficientonacriteria, she/hescores0
- Ifthestudent'sperformanceisSufficientona criteria,she/hescores 1
- Ifthestudent'sperformanceisCompetentona criteria, she/hescores2
- Ifthestudent'sperformanceisExemplaryona criteria,she/hescores3

TOOLSUSEDFORASSESSMENT:

- Participation in various events
- Organizing various events

COMPOSITIONOFASSESSMENTBOARD

- Event Coordinator
- Club/Committee Members

SCORESHEET: INDIVIDUAL

If the studentscoresbetween	Outcome AttainmentLevels
<8	Needs improvement
9-11	Satisfactory
12-14	PartlyAchieved
15-18	FullyAchieved

Students scoring 9 or above fall in the passing criteria.

SCORESHEET:PROGRAMME/BATCH

Outcome AttainmentLevels	Percentage of Students
Needs improvement	
Satisfactory	
PartlyAchieved	
FullyAchieved	

Participation in Club and Committee Activities

Name: ___ Enrolment No.: ____ Course: ____

S.No	Indicator	Deficient	Sufficient	Competent	Exemplary	Score
1.	Student participate actively in various Club and Committee activities.					
2.	Takes the initiative to plan and drive various creative events.					
3.	Is a member of a Club or Committee and helps organize events inthat capacity.					
4.	Demonstrate high level of interpersonal skill.					
5.	Delivers assigned job effectively.					
6.	Is able to inspire peer group.					
					TotalScore	

If the studentscoresbetween	Outcome AttainmentLevels
<8	Needs improvement
9-11	Satisfactory
12-14	PartlyAchieved
15-18	FullyAchieved

Students scoring 9 or above fall in the passing criteria.

Signatures:

8.1.9 Rubrics for Human Values

AMITY UNIVERSITY

RUBRICSFORASSESMENTOFHUMAN VALUES AMONGST STUDENTS

ASSESSMENT PARAMETERS:

- **Rarely**
- **Seldom**
- **Sometimes**
- **Always**

SCORING:

- Ifthestudent rarely getinvolved, He/Shescores0
- Ifthestudent seldom getinvolved,He/Shescores 1
- Ifthestudent sometimes getinvolved, He/Shescores2
- Ifthestudent always getinvolved,He/Shescores3

TOOLSUSEDFORASSESSMENT:

- Participation
- Active involvement in organizing

COMPOSITIONOFASSESSMENTBOARD

- Amity Human Value Coordinator
- Event Faculty coordinator

SCORESHEET: INDIVIDUAL

If the studentscoresbetween	Outcome AttainmentLevels
<10	Needs improvement
10-12	Satisfactory
12-16	PartlyAchieved
16-20	FullyAchieved

Students scoring 9 or above fall in the passing criteria.

SCORESHEET:PROGRAMME/BATCH

Outcome AttainmentLevels	Percentage of Students
Needs improvement	
Satisfactory	
PartlyAchieved	
FullyAchieved	

ASSESMENTOFHUMAN VALUES AMONGST STUDENTS

S.No	Indicators	Rarely (1)	Seldom (2)	Sometimes (3)	Always (4)	Score
1.	The student is aware about various social issues/problems in their					
2.	The Student Substantially identifies the concern that they					
3.	The student involves in organizing various activities.					
4.	The student demonstrates active participation in various					
5.	The student is recognized and appreciated for the work to the community.					
					TotalScore	

If the studentscoresbetween	Outcome AttainmentLevels
<10	Needs improvement
10-12	Satisfactory
12-16	PartlyAchieved
16-20	FullyAchieved

Students scoring 9 or above fall in the passing criteria.

Signatures:

8.2 : Guidelines of Comprehensive Examination :

Domain of Science and Technology

Comprehensive Examination Guidelines for UG and PG Programmes for intended Programme Learning Outcomes

Purpose	To assess attainment of programme goals in the core and specialisation areas of all the programmes in Science and Technology.
Goal(s)	1. To acquire and demonstrate the understanding of theory and concepts of Scienceand Technology. 2. To develop an ability to apply the fundamental concepts of Science and Technology to comprehend, analyze, formulate, design and develop novel products and solutions for real life problems. 3. To inculcate in students professional and ethical attitudes, effective communication skills, behaviour skills, multidisciplinary approach and ability to relate Scientific issues to broader social and environmental contexts. 4 To provide students with an academic environment aware of excellence, leadership, written ethical codes & guidelines, use of modern IT tools and life- long learning needed for successful professional / entrepreneurial career. 5. To develop the ability amongst students to assess societal, health, safety, legal, cultural and environmental issues and relevant scientific responsibilities by applying reasoned contextual knowledge and understand its impact towards sustainable development. 6. To develop industry ready students who can excel in their professional careers or pursue higher studies/ jobs.
Process	
Format	**Comprehensive Examination Framework** • Total Multiple Choice questions to be asked : 200 • Programme Group Questions will be common for all programmes in the programme group and will be entered by Programme Group Coordinator in Amizone. • Programme Questions for each programme will be different and will be entered by the HoIs.

- Students will be able to see all the 200 questions together.
- The questions must be linked to the PLOs, Institution Graduate Attributes, Domain Graduate Attributes and Finally to University Graduate Attributes.

S.No.	Section / University Graduate Attributes	Sub Section	No of Q
1	Knowledge & Expertise of a discipline	1A	20
		1B	20
		1C	20
2	Research Enquiry	2A	20
		2B	15
3	Information & Digital Literacy	3A	5
		3B	5
4	Global Citizen	4	10
5	Problem Solving	5A	10
		5B	30
6	Ethical, Social and Professional Responsibility	6	10
7	Employability, Enterprise & Entrepreneurship	7A	5
		7B	5
8	Life Long Learning	8	15
9	Any Other	9	10
	Total		200

8.3 Format of Student Exit Survey:

8.3.1 Format of Alumni Survey- Masters Programme

AMITY UNIVERSITY
UTTAR PRADESH

Domain of Science & Technology

Student Alumni Survey-Masters Programmes

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

Looking back on your time at AMITY, how would you assess each of the following aspects of your at AMITY?

S.No.	Experience	Poor	Fair	Good	Very Good	Excellent
1	Various Courses					
2	Value added courses					
3	Overall academic experience					
4	Non-academic or student life experience					
5	Overall experience					

What was your first position after leaving the Programme:

Employed full-time
Self-employed
Higher studies
Unemployed
Other _____

How satisfied are you with the following aspects of your current or most recent job?

S.No.	Aspects	Dissatisfied	Somewhat Dissatisfied	Somewhat Satisfied	Satisfied	Completely Satisfied
1	Intellectual challenge					
2	Career growth, opportunities					
3	Level of responsibility					
4	Flexibility					
5	Prestige of job/organization					

6	Contribution to field/society					
7	Job security					
8	Salary					
9	Working Condition					
10	Learning Opportunity					

How well do you think your degree program at AMITY has prepared you for your chosen career?

Very well prepared quite well

Adequately

Inadequately

How important is each of the following skills and abilities to your current work?

S.No.	Skill/Ability	Not important	Somewhat important	Important	Very important	Essential
1	Subject Knowledge					
2	Research Skills					
3	Identifying problem and formulating solution					
4	Information & Digital Literacy					
5	Locating and applying information/data					
6	Oral Communication					
7	Written Communication					
8	Thinking critically/problem-solving					
9	Working collaboratively					
10	Interpersonal Skills					
11	Leadership Skill					
12	Ethical Conduct					
13	Professional Conduct					
14	Working with people from diverse backgrounds/Global Outlook					
15	Life Long Learning					
16	Any other (please specify)					

With what aspect(s) of the Master's program and the University were you the most satisfied?

_____

With what aspect(s) of the Master's program and the University were you the least satisfied?

_____

If you could start over again, will you join AMITY?

Yes No

Do you have other comments and/or suggestions that you would like to share?

_____

Thank you for taking the time to complete this survey.

Domain Leadership & Assesment Team :

SCIENCE AND TECHNOLOGY DOMAIN

Leadership Team

Dean/Domain Head:						
S.No	**Institution Name**	**Head of the Institution**	**Programme Title**	**Programme Leaders**	**Programme Review Committee (PRC of 3-5 Members)**	**Role**
1	AIAS	Dr Sunita Rattan	M Sc Applied Chemistry	Dr Kumar Rakesh Ranjan	Dr Sangeeta Tiwari	Chair
					Dr Christine Jeyaseelan	Member
					Dr Deepshikha Gupta	Member
					Dr Kumar Rakesh Ranjan	Member
					Dr Anita Gupta	Member
			M Sc Applied Physics	Dr Rohit Verma	Dr R S Pandey	Chair
					Dr Gautam Singh	Member
					Dr S K Srivastava	Member
					Dr H D Sharma	Member
					Dr A K Shukla	Member
					Dr Adarsh Kumar	Member
					Dr Surbhi Malik	Member
			M Sc Applied Mathematics	Dr Sasheendra Shukla	Dr Prakriti Rai	Chair
					Prof. C.K Goel	Member
					Dr H D Arora	Member
					Dr Rashmi Singh	Member
					Dr. Sumit Kaur Bhatia	Member
					Dr Sudipa Chauhan	Member
			M Stats	Dr Rohini Yadav	Dr Dheeraj Pawar	Chair
					Dr Jitendra Kumar	Member
					Dr. Rohini Yadav	Member
					Dr. Niraj Kr Singh	Member

					Dr Nandini Sarma	Member
			B Sc (H) Chemistry	Dr Deepshikha Gupata	Dr Sangeeta Tiwari	Chair
					Dr Christine Jeyaseelan	Member
					Dr Deepshikha Gupta	Member
					Dr Seema Garg	Member
					Dr Anita Gupta	Member
			B Sc (H) Physics	Dr Gautam Singh	Dr R S Pandey	Chair
					Dr Rohit Verma	Member
					Dr S K Srivastava	Member
					Dr H D Sharma	Member
					Dr A K Shukla	Member
					Dr Adarsh Kumar	Member
					Dr Surbhi Malik	Member
			B Sc (H) Mathematics	Dr Ratnesh Kumar Mishra	Dr Prakriti Rai	Chair
					Prof. C.K. Goel	Member
					Dr H D Arora	Member
					Dr Rashmi Singh	Member
					Dr Shashank Goel	Member
			B Stats	Dr Rohini Yadav	Dr Dheeraj Pawar	Chair
					Dr Jitendra Kumar	Member
					Dr Niraj Kr singh	Member
					Dr Nandini Sarma	Member
2.	Amity Institute of Food Technology (AIFT)	Dr. V.K. Modi	B.Tech.(Food Technology)	1. Dr. Renu D Khedkar 2. Dr. Karuna Singh	Dr. V.K. Modi	Chair
					. Dr. Renu D Khedkar	Member Secretary
					Dr. Ashish Mohite	Member 1
					Mr. Ankit Paliwal	Member 2
			M.Tech.(Food Technology)	1. Dr. Monika Thakur	Dr. V.K. Modi	Chair

				2. Dr. Renu D Khedkar	Dr. Renu D. Khedkar	Member Secretary
					Ms. Mandeep Kaur	Member 1
					Dr. Himjyoti Dutta	Member 2
			M.Sc.(Foods and Nutrition)	1. Dr. Monika Thakur	Dr. V.K. Modi	Chair
					Dr. Monika Thakur	Member Secretary
					Dr. Shradha Sodhani	Member 1
					Dr. Tanu Jain	Member 2
3.	AIFS	Dr. S.K. Shukla	B.Sc. (H) Forensic Science	Dr. Himanshu Khajuria	Dr. S.K. Shukla	Chair
					Dr. V.C. Mishra	Member
					Dr. BP Nayak	Member
					Dr. Amarnath Mishra	Member
					Dr. Himanshu Khajuria	Member Secretary
			M.Sc. Forensic Science	Dr. Prateek Pandya	Dr. S.K. Shukla	Chair
					Dr. Jyoti Singh	Member
					Dr. Pooja Malik Puri	Member
					Dr. Amarnath Mishra	Member
					Dr. Prateek Pandya	Member Secretary

4	AINT	Dr D K Avasthi	1. M.Tech (Nanotechnology) 2. M.Sc. + M. Tech Dual Degree 3. M.Sc. Nanoscience by Research	Dr. Ranjit Kumar	Dr. D.K. Avasthi	Chair
					Dr. O.P. Sinha	Member
					Dr Arpita Bhattacharya	Member
					Dr. Sandip Chakraborti	Member
					Dr Tinku Basu	Member
			1.B. Tech (Nanotechnology) 2. B.Tech +M. Tech (Nanotechnology) 3. B.Sc. (Nanoscience)	Dr Ranjit Kumar	Dr. D.K.Avasthi	Chair
					Dr O.P.Sinha	Member
					Dr Richa Krishna	Member
					Dr Jagriti Narang	Member
					Dr Ashish Mathur	Member

XI. DOMAIN LEADERSHIP AND ASSESSMENT TEAM

Assessment Leadership Team							
S.No	**Institution Name**	**Head of the Institution**	**Institutional Assessment Team**	**Role**	**Programme Title**	**Programme Assessment Team (PRC of 3-4 Members)**	
1	AIAS	Dr Sunita Rattan	Dr Sunita Rattan	Chair	M Sc Applied Chemistry	**Assessment Team**	**Role**
			Dr Sangeeta Tiwari	Member		Dr Sangeeta Tiwari	Chair
			Dr R S Pandey			Dr Christine Jeyaseelan	Member 1
			Dr Prakriti Rai	Member		Dr Deepshikha Gupta	Member 2
			Dr Jitendra Kumar	Member		Dr.Kumar Rakesh Ranjan	Member 3
				Member		Dr Anita Gupta	Member 4
					M Sc Applied Physics	Dr R S Pandey	Chair
						Dr Gautam Singh	Member 1
						Dr S K Srivastava	Member 2
						Dr H D Sharma	Member 3
						Dr A K Shukla	Member 4
						Dr Adarsh Kumar	Member 5
						Dr Surbhi Malik	Member 6
					M Sc Applied Mathematics	Dr Prakriti Rai	Chair
						Prof. C.K. Goel	Member1
						Dr H D Arora	Member 2
						Dr Rashmi Singh	Member 3
						Dr Sumit Kair Bhatia	Member 4
						Dr Sudipa Chauhan	Member 5
					M Stats	Dr Dheeraj Pawar	Chair
						Dr. Jitendra Kumar	Member1
						Dr Rohini Yadav	Member 2
						Dr Nandini Sarma	Member 3
						Dr Niraj Kr. Singh	Member 4

					B Sc (H) Chemistry	Dr Sangeeta Tiwari	Chair
						Dr Christine Jeyaseelan	Member 1
						Dr Deepshikha Gupta	Member 2
						Dr Seema Garg	Member 3
						Dr Anita Gupta	Member 4
					B Sc (H) Physics	Dr R S Pandey	Chair
						Dr Rohit Verma	Member 1
						Dr S K Srivastava	Member 2
						Dr H D Sharma	Member 3
						Dr A K Shukla	Member 4
						Dr Adarsh Kumar	Member 5
						Dr Surbhi Malik	Member 6
					B Sc (H) Mathematics	Dr Prakriti Rai	Chair
						Prof. C.K.Goel	Member1
						Dr. Ratnesh Kr Mishra	Member 2
						Dr H D Arora	Member 3
						Dr Rashmi Singh	Member 4
						Dr Shashank Goel	Member 5
					B Stats	Dr Dheeraj Pawar	Chair
						Dr Jitendra Kumar	Member 1
						Dr Nandini Sarma	Member 2
						Dr. Rohini Yadav	Member 3
						Dr Niraj Kr Singh	Member 4

2	Amity Institute of Food Technology (AIFT)	Dr. V.K.Modi	Dr. V.K.Modi Dr. Neha Sharma Dr. Karuna Singh Dr.Alok Saxena	Chair Member Member Member	B.Tech.(Food Technology)	Dr. V.K.Modi Dr. Renu D. Khedkar Mr. Ashish Mohite Mr. Ankit Paliwal	Chair Member Secretary Member 1 Member 2
					M.Tech.(Food Technology)	Dr. V.K.Modi	Chair
						Dr. Monika Thakur	Member Secretary
						Ms. Mandeep Kaur	Member 1
						Dr. Himjyoti Dutta	Member 2
					M.Sc.(Foods and Nutrition	Dr. V.K.Modi	Chair
						Dr. Karuna Singh	Member Secretary
						Dr. Shradha Sodhani	Member 1
						Dr. Tanu jain	Member 2

3	Amity Institute of Forensic Science	Dr. S.K. Shukla	Dr. S.K. Shukla Dr. V.C. Mishra Dr. B. P. Nayak Dr. Jyoti Singh Dr. Pooja Malik Puri Dr. Shruti Gupta	Chair Member Member Member Member	B.Sc. (H) Forensic Sciences	Dr. S.K. Shukla Dr. V.C. Mishra Dr. BP Nayak Dr. Amarnath Mishra Dr. Himanshu Khajuria	Chair Member 1 Member 2 Member 3 Member 4
					M.Sc. Forensic Sciences	Dr. S.K. Shukla	Chair

						Dr. Jyoti Singh	Member 1
						Dr. Pooja Malik Puri	Member 2
						Dr. Amarnath Mishra	Member 3
						Dr. Prateek Pandya	Member 4
4	Amity Institute of Nano Technology (AINT)	Dr. D.K. Avasthi	Dr . D.K. Avasthi	Chair	B.Tech.(Nanotechnology)	Dr. D.K. Avasthi	Chair
			Dr. O.P. Sinha	Member			
			Dr. Tinku Basu	Member			
			Dr. Arpita Bhattacharya	Member			
			Dr. Sandip Chakraborti	Member			
						Dr. O P Sinha	Member 1
						Dr. Ranjit Kumar	Member 2
						Mr. Robin Kumar	Member 3
						Dr R N Pudake	Member 4
					B. Tech + M. Tech Dual Degree	Dr. D.K. Avasthi	Chair
						Dr. O.P. Sinha	Member 1
						Dr. Sandip Chakraborti	Member 2
						Dr. R.M. Tripathi	Member 3
						Dr. Richa Krishna	Member 4

					B.Sc. Hons (Nanoscience)	Dr. D.K. Avasthi	Chair
						Dr. Ranu Nayak	Member 1
						Dr.. Ashish Mathur	Member 2
						Dr. Arpita Bhattacharya	Member 3
						Dr. T. Basu	Member 4
					M.Tech (Nanotechnology)	Dr. D.K. Avasthi	Chair
						Dr. O.P. Sinha	Member 1
						Dr.. T.Basu	Member 2
						Dr. A. Bhattacharya	Member 3
						Dr. Utkarsh Jain	Member 4
					M.Sc Nanoscoence by Research .+ M.Tech Nanotechnology Dual Degree	Dr. D. K. Avasthi	Chair
						Dr. Richa Krishna	Member 1
						Dr. Sandip Chakraborti	Member 2
						Dr. Utkarsh Jain	Member 3
						Dr. O.P. Sinha	Member 4
					M.Sc. By Research	Dr. D.K. Avasthi	Chair
						Dr. T. Basu	Member 1
						Mr. Ranu Nayak	Member 2
						Dr. J. Narang	Member 3
						Dr. Nidhi	
						Chauhan	Member 4