Centurion University of Technology and Management

School of Applied Sciences

B.Sc. - Chemistry/Physics/Math/Botany/Zoology/BCA

Programme Objectives;

1. To expand scientific temper and can prove to be more beneficial for the society as the scientific developments can make a nation or society to grow at a rapid pace.
2. To obtain a professional job as scientist, researcher, entrepreneur and to get jobs in marketing, business & other technical fields.

POs: Science Graduates will be able to;

Pos	Outcomes
PO1	Apply mathematics, science, fundamentals and specialization to the conceptualization of different scientific models
PO2	Identify, formulate, research literature and solve complex science related problems reaching substantiated conclusions using first principles of mathematics and applied sciences
PO3	Design solutions for complex scientific problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations
PO4	Conduct investigations of complex problems including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions
PO5	Create, select and apply appropriate techniques, resources, and modern engineering tools, including prediction and modeling, to complex scientific activities, with an understanding of the limitations
PO6	Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings
PO7	Communicate effectively on complex science activities with the science community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions
PO8	Demonstrate understanding of the societal, health, safety, legal and cultural issues andthe consequent responsibilities relevant to scientific application
PO9	Understand and commit to professional ethics and responsibilities and norms of engineering practice
PO10	Understand the impact of science solutions in a societal context and demonstrate knowledge of and need for sustainable development
PO11	Recognize the need for, and have the ability to engage in independent and life-long learning

PO12	Demonstrate a knowledge and understanding of contemporary technologies, their applications and limitations, contemporary research in the broader context of relevant fields
PO13	Demonstrate the ability to succeed in national and international competitive events in the relevant fields

A. PSOs: Department of Chemistry:

PSO1: The Programme enables the students to understand basic facts and concepts of Chemistry while retaining the exciting aspects of Chemistry so as to develop interest in the study of chemistry as a discipline.
PSO2: Students will be able to develop the ability to apply the basic principles like quality testing and reactions in day to day activities and problem solving skill.
PSO3: Able to familiarize with the emerging areas of Chemistry and their applications in various spheres of Chemical sciences and to apprise the students of its relevance in future studies. Able to be exposed to the different processes used in industries and their applications

***Correlation is noted as "H" for High, "M" for Medium and "L" for Low**

Mapping PSOs with POs (Scale of High, Medium and Low)

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PO13**
PSO1	**H**	**H**	**M**	**M**	**L**	**M**	**L**	**H**	**H**	**L**	**M**	**M**	**M**
PSO2	**H**	**H**	**M**	**H**	**H**	**M**	**M**	**M**	**M**	**M**	**M**	**H**	**M**
PSO3	**H**	**H**	**M**	**M**	**M**	**M**	**L**	**M**	**M**	**M**	**M**	**M**	**M**

B. PSOs: Department Physics:

PSO1. Provide knowledge about material properties and its application for developing technology to ease the problems related to the society. Applied course will enable them to be suitable for various fields.

PSO2. Understood the basic concepts, fundamental principles and the scientific theories related to various phenomena of Physics and their relevancies in the day-to-day life.

PSO3. Learn the concepts as Classical Mechanics, Solid State Physics, Quantum Mechanics, Relativity, Nuclear and Particle Physics, Electronics etc. Analyze the applications of mathematics to the problems in physics & develop suitable mathematical method for such application & for formulation of physical theories.

Mapping PSOs with POs (Scale of High, Medium and Low)

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PO13**

PSO1	**H**	**H**	**M**	**M**	**L**	**M**	**L**	**H**	**H**	**L**	**M**	**M**	**M**
PSO2	**H**	**H**	**M**	**H**	**H**	**M**	**M**	**M**	**M**	**M**	**M**	**H**	**M**
PSO3	**H**	**H**	**M**	**M**	**M**	**M**	**L**	**M**	**M**	**M**	**M**	**M**	**M**

C. PSOs: Department of Mathematics

PSO1. Graduates will develop their ability to apply critical thinking skills to solve problems that can be modelled mathematically, to critically interpret numerical and graphical data, to read and construct mathematical arguments and proofs.
PSO2. Graduates will have an ability to design, implement, and evaluate a computer based hypothetical solution

PSO3. Graduates will able to qualify JAM/JEST and other PSU examinations.

Mapping PSOs with POs (Scale of High, Medium and Low)

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PO13**
PSO1	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**
PSO2	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**M**	**H**	**H**	**H**	**L**
PSO3	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**L**	**H**	**H**	**H**	**L**

D. PSOs: Department of Botany

PSO1: To expose them to various skill and domain subjects, lab experiments, gain practical knowledge in cell biology, genetics, taxonomy, physiology, ecology and Biotechnology and able to trend themselves for employability.

PSO2: Motivate the students for higher education and the students gain confidence in expressing ideas and views about the particular program clearly.

PSO3: Able to perform various procedures as per laboratory standards in the areas of Taxonomy, Physiology, Ecology, Cell biology, Genetics, tools and techniques of botany, toxicology, agri-biotechnology, Biochemistry, Plant biotechnology and research methodology.

Mapping PSOs with POs (Scale of High, Medium and Low)

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PO13**
PSO1	**H**	**H**	**M**	**M**	**L**	**M**	**L**	**H**	**H**	**L**	**M**	**M**	**M**
PSO2	**H**	**H**	**M**	**H**	**H**	**M**	**M**	**M**	**M**	**M**	**M**	**H**	**M**

PSO3	**H**	**H**	**M**	**M**	**M**	**M**	**L**	**M**	**M**	**M**	**M**	**M**	**M**

E. PSOs: Department of Zoology

PSO1: The students will understand the nature and basic concepts of cell biology, genetics, taxonomy, physiology, ecology and applied Zoology and analyse the relationships among animals, plants and microbes

PSO2: Perform procedures as per laboratory standards in the areas of Taxonomy, Physiology, Ecology, Cell biology, Genetics, Applied Zoology, Clinical science, tools and techniques of Zoology, Toxicology, Entomology, Nematology, Sericulture, Biochemistry, Fish biology, Animal biotechnology, Immunology and research methodology.

PSO3: To expose them to various skill and domain subjects, lab experiments, gain practical knowledge. Motivate the students for Higher education and the students gain confidence in expressing ideas and views about the particular program clearly.

Mapping PSOs with POs (Scale of High, Medium and Low)

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PO13**
PSO1	**H**	**H**	**M**	**M**	**L**	**M**	**L**	**H**	**H**	**L**	**M**	**M**	**M**
PSO2	**H**	**H**	**M**	**H**	**H**	**M**	**M**	**M**	**M**	**M**	**M**	**H**	**M**
PSO3	**H**	**H**	**M**	**M**	**M**	**M**	**L**	**M**	**M**	**M**	**M**	**M**	**M**

F.PSOs: Bachelor of Computer Applications

PSO1: The program enables the students to apply knowledge of computing fundamentals, computing specialization and domain knowledge for the abstraction and conceptualization of computing models from defined problems and requirements.

PSO2: Students will be able to develop the ability to use the techniques, skills and modern hardware and software tools necessary for innovative software solutions to problems across a broad range of application domains through analysis and design

PSO3: This program enables the students to prepare students for respectable career in the software design, development & testing also in software support, web applications and in the field of commerce and management domain.

***Correlation is noted as "H" for High, "M" for Medium and "L" for Low**

Mapping PSOs with POs (Scale of High, Medium and Low)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13
PSO1	**H**	**H**	**M**	**H**	**M**	**L**	**M**	**M**	**H**	**L**	**M**	**H**	**H**
PSO2	**H**	**M**	**H**	**H**	**H**	**M**	**L**	**M**	**H**	**L**	**M**	**H**	**H**
PSO3	**H**	**H**	**M**	**M**	**H**	**M**	**L**	**M**	**L**	**M**	**M**	**H**	**H**

Course Outcomes of Bachelor of Science programs:

COs	Skills
CO1	Knowledge
CO2	Observe, Classify, Quantify, Interpret and Communicate
CO3	Investigation and Judgements
CO4	Problem Solving
CO5	Leadership & Entrepreneurship
CO6	Product/Publication/Patent

Scale: H: High, M: Medium, L: Low, -: Nil

M.Sc – Applied Chemistry/Applied Physics/Applied Math/Botany/Zoology

Program Objectives:

1. To acquire the knowledge with facts and figures related to various subjects in pure sciences and allied subjects. To understand the basic concepts, fundamental principles, and the scientific theories related to various scientific phenomena and their relevancies in the day-to-day life.
2. To acquire the skills in handling scientific instruments, planning and performing in laboratory experiments.
3. To think creatively to propose novel ideas in explaining facts and figures or providing new solution to the problems.
4. To initiate research practices and develop scientific outlook not only with respect to science subjects but also in all aspects related to life.

POs; Science Masterates will be able to;

Pos	Outcomes

PO1	Apply mathematics, science, fundamentals and specialization to the conceptualization of different scientific models
PO2	Identify, formulate, research literature and solve complex science related problems reaching substantiated conclusions using first principles of mathematics and applied sciences
PO3	Design solutions for complex scientific problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations
PO4	Conduct investigations of complex problems including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions
PO5	Create, select and apply appropriate techniques, resources, and modern engineering tools, including prediction and modelling, to complex scientific activities, with an understanding of the limitations
PO6	Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings
PO7	Communicate effectively on complex science activities with the science community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions
PO8	Demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to scientific application
PO9	Understand and commit to professional ethics and responsibilities and norms of engineering practice
PO10	Understand the impact of science solutions in a societal context and demonstrate knowledge of and need for sustainable development
PO11	Recognize the need for, and have the ability to engage in independent and life-long learning
PO12	Demonstrate a knowledge and understanding of contemporary technologies, their applications and limitations, contemporary research in the broader context of relevant fields
PO13	Demonstrate the ability to succeed in national and international competitive events in the relevant fields

A. PSOs of Department of Applied Chemistry:

PSO-1: Students will be able to demonstrate, solve and understand the major concepts in all branches of chemistry.

PSO-2: Students will acquire deep knowledge in the study of physical, chemical, electrochemical and magnetic properties, structure elucidation using various techniques and applications of various organic and inorganic materials

PSO-3: Students will obtain basic knowledge in the specialized areas of chemistry and will be skilled in various quantitative and qualitative analyses. Can able to solve the problem and also think methodically, independently and draw a logical conclusion.

Mapping PSOs with POs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13
PSO1	H	H	H	H	H	H	H	H	M	H	H	H	H
PSO2	H	H	H	H	H	H	H	H	M	H	H	H	H
PSO3	H	H	H	H	H	H	H	H	H	H	H	H	H

B. PSOs of Department of Applied Physics:

PSO-1: Learn the concepts and advanced theory of Classical Mechanics, Solid State Physics, Quantum Mechanics, Relativity, Nuclear and Particle Physics, Electronics etc.

PSO-2: Analyze the applications of mathematics to the problems in physics & develop suitable mathematical method for such application & for formulation of physical theories.

PSO-3: Realized how developments in any science subject helps in the development of other science subjects and vice-versa and importance of interdisciplinary approach required for sustainable developments. Provide knowledge about material properties and its application for developing technology to ease the problems related to the society.

Mapping PSOs with POs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13
PSO1	H	H	M	M	L	M	L	H	H	L	M	M	M
PSO2	H	H	M	H	H	M	M	M	M	M	M	H	M
PSO3	H	H	M	M	M	M	L	M	M	M	M	M	M

C. PSOs of Department of Applied Mathematics:

PSO1: Ability to apply appropriate methods of research, investigation and design, to solve problems in Mathematics.

PSO2: An understanding of professional, ethical, legal, security and social issues and responsibilities.

PSO3: An ability to analyze the local and global impact of Mathematics on individuals, organizations, and society.

Mapping PSOs with POs (Scale of High, Medium and Low)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13
PSO1	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**
PSO2	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**M**	**H**	**H**	**H**	**L**
PSO3	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**M**	**H**	**H**	**H**	**L**

D. PSOs of Department of Botany:

PSO1: To descript them to various skill and domain subjects, lab experiments, gain practical knowledge in advance cell biology, genetics, molecular biology, Plant breeding, taxonomy, physiology, ecology and Biotechnology and able to trend themselves for employability.

PSO2: To stimulate the students for higher education and the students gain confidence in expressing ideas and views about the particular program clearly.

PSO3: Able to perform various procedures as per laboratory standards in the areas of Diversity, Taxonomy, Metabolism, Phytopharma, Physiology, Ecology, Cell biology, Genetics, tools and techniques of botany, toxicology, agri-biotechnology, Biochemistry, Plant biotechnology and research methodology.

Mapping PSOs with POs (Scale of High, Medium and Low)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13
PSO1	**H**	**H**	**M**	**M**	**L**	**M**	**L**	**H**	**H**	**L**	**M**	**M**	**M**
PSO2	**H**	**H**	**M**	**H**	**H**	**M**	**M**	**M**	**M**	**M**	**M**	**H**	**M**
PSO3	**H**	**H**	**M**	**M**	**M**	**M**	**L**	**M**	**M**	**M**	**M**	**M**	**M**

E. PSOs of Department of Zoology:

PSO1: Jobs

PSO2: Higher studies

PSO3: Research

Mapping PSOs with POs (Scale of High, Medium and Low)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13
PSO1	**H**	**H**	**M**	**M**	**L**	**M**	**L**	**H**	**H**	**L**	**M**	**M**	**M**
PSO2	**H**	**H**	**M**	**H**	**H**	**M**	**M**	**M**	**M**	**M**	**M**	**H**	**M**
PSO3	**H**	**H**	**M**	**M**	**M**	**M**	**L**	**M**	**M**	**M**	**M**	**M**	**M**

COs of Master of Science programmes:

COs	**Skills**
CO1	Knowledge
CO2	Observe, Classify, Quantify, Interpret and Communicate
CO3	Investigation and Judgements
CO4	Problem Solving
CO5	Leadership & Entrepreneurship
CO6	Product/Publication/Patent