

Program Specific Outcomes (PSO) and Course Outcomes (CO)
Faculty – Science and Technology (UG)
AY-2019-20

Name of Faculty	Science and Technology
Name of Department	Chemistry
Departmental Email ID	chemnacsp@gmail.com
UG Programme	B.Sc. Chemistry
Programme Specific Outcomes (PSO)	
<ol style="list-style-type: none"> 1. The fundamentals, principles, practical skills and recent developments in the subject area. 2. Inspire and boost interest of the students towards chemistry as the main subject and understand global issues. 3. To create foundation for advanced studies, research and development in Chemistry. 	
Course Outcomes(CO): F.Y.B.Sc.	
<p><u>CH-101: Physical Chemistry</u></p> <ol style="list-style-type: none"> 1. The learner will be acquired with sound knowledge of chemical energetics, Chemical equilibrium and ionic equilibrium. 2. The learner is acquainted with simple mathematical formulae, their derivations and numerical problems based on the theories. <p><u>CH-102: Organic Chemistry</u></p> <ol style="list-style-type: none"> 1. Fundamentals of Organic chemistry and Stereochemistry (Conformations, configurations and nomenclatures) 2. Functional group approach for aliphatic hydrocarbons <p><u>CH-201: Inorganic Chemistry</u></p> <ol style="list-style-type: none"> 1. Developments in Atomic structure and Periodicity of Elements 2. Theories for chemical bonding 3. Foundations (Early preparations) used in chemistry laboratory <p><u>CH-202: Organic Chemistry</u></p> <p>After completing the course work the students will learn and master</p> <ol style="list-style-type: none"> 1. Functional group approach for the various reactions in context to their structure <p><u>CH-103 and CH-203: Laboratory Courses</u></p> <ol style="list-style-type: none"> 1. Correlation between practical experiments with theory to improve the understanding. 2. Development of practical skills and innovative in experimentation (Microscale techniques) and Laboratory safety. 3. Imbibition of basic principles of research like synthesis, purification and characterizations. 	

Name of Faculty	Science and Technology
Name of Department	Physics
Departmental Email ID	phynacsp@gmail.com
UG Programme	B.Sc. Physics
Programme Specific Outcomes (PSO)	
<ul style="list-style-type: none"> ➤ To foster scientific attitude, provide in-depth knowledge of scientific and technological concepts of Physics. ➤ To enrich knowledge through problem solving, minor/major projects, seminars, tutorials, review of research articles/papers, participation in scientific events, study visits, etc. ➤ To create foundation for research and development in Physics. ➤ To help students to learn various experimental and computational tools thereby developing analytical abilities to address real world problems. ➤ To train students in skills related to research, education, industry, and market. 	
Course Outcomes(CO): F.Y.B.Sc.	
<u>PHY-111: Mechanics and Properties of Matter</u>	
<ul style="list-style-type: none"> ➤ To understand the basic concepts of physics in the era of mechanics like force, momentum, energy and laws of mechanics, like Newton's laws, kinematical equations and mechanics related problems. ➤ Students are able to understand the properties of solid like stress and strain. 	
<u>PHY-112: Physics Principles and Applications</u>	
<ul style="list-style-type: none"> ➤ To understand the general structure of atom, spectrum of hydrogen atom. ➤ To demonstrate an understanding of electromagnetic waves and its spectrum. ➤ Understand the types and sources of electromagnetic waves and applications. 	
<u>PHY-121: Heat and Thermodynamics:</u>	
<ul style="list-style-type: none"> ➤ To understand the concepts of work, power, and heat in thermodynamics; determine work and heat sign conventions; determine work involved with moving boundary systems (graphical and analytical methods). ➤ To understand the second law of thermodynamics, including why it is necessary, how it is defined (Kelvin-Planck and Clausius), the nature of irreversibility, and the Carnot cycle. ➤ To understand the concept of entropy, including the Clausius Inequality, using thermodynamic tables, setting up entropy balances, and calculating isentropic efficiency of pumps, compressors, turbines, and heat exchangers. 	
<u>PHY-122: Electricity and Magnetism</u>	
<ul style="list-style-type: none"> ➤ To understand the concept of the electric force, electric field and electric potential for stationary charges. ➤ Able to calculate electrostatic field and potential of charge distributions using Coulomb's law and Gauss's law. ➤ To understand the dielectric phenomenon and effect of electric field on dielectric. 	

PHY-113 and PHY-123: Physics Laboratory:

- Correlation between practical experiments with theory to improve the understanding.
- Development of practical skills and innovative in experimentation.
- To study and handle the fundamental instruments

Name of Faculty	Science and Technology
Name of Department	Botany
Departmental Email ID	botnacsp@gmail.com
UG Programme	B.Sc. Botany
Programme Specific Outcomes (PSO)	
<ol style="list-style-type: none"> 4. The fundamentals, principles, practical skills and recent developments in the subject area. 5. Inspire and boost interest of the students towards Botany as the main subject and understand global issues. 6. To create foundation for advanced studies, research and development in Botany. 	
Course Outcomes(CO): F.Y.B.Sc.	
BO-111: PLANT LIFE AND UTILIZATION I	
<ol style="list-style-type: none"> 1. The learner will be acquired with sound knowledge of Lower Cryptogams (Thallophytes and Bryophytes). 2. The learner will be acquainted with knowledge of life cycle pattern in Algae (<i>Spirogyra</i>), Fungi (Mushroom- <i>Agaricus bisporus</i>) & Bryophytes (<i>Riccia</i>). 3. The learner will be acquired with sound knowledge with utilization of Algae, Fungi, Lichens and Bryophytes in Food and Fodder, agriculture, fuel, ecological indicators and pharmaceuticals. 	
BO-112: PLANT MORPHOLOGY AND ANATOMY	
<ol style="list-style-type: none"> 1. The learner will be acquired with sound knowledge of importance of plant morphology in identification, nomenclature, classification, phylogeny and Plant breeding. 2. The students will be making familiar with morphology of reproductive parts of plants. 3. The learner will be gain with sound knowledge of various tissues and internal organization of plant body. 	
BO-121: PLANT LIFE AND UTILIZATION-II	
<ol style="list-style-type: none"> 4. The learner will be acquired the information of plant diversity with reference to vascular plants like Pteridophytes, Gymnosperms and Angiosperms. 5. The learner will be acquired with sound knowledge of general characters, Outline classification, Life cycle, Habit, habitat, distribution, morphology, anatomy, reproduction and utilization of Pteridophytes, Gymnosperms and Angiosperms. 	

BO-122: PRINCIPLES OF PLANT SCIENCE

1. The students will be making familiar with fundamental concepts of plant physiology.
2. The learner will be acquired with sound knowledge of cell, cell organelles and cell cycle.
3. The students will be making familiar with nature of genetic material, DNA replication, DNA organization in chromosome, structure and type of RNA and application of molecular biology.

BO 113 and BO 123: PRACTICAL COURSE

1. Correlation between practical's with theory to improve the understanding.
2. To organize educational tour for study of flora.
3. To develop plant related practical skills in students.
4. To imbibe research related methodology in students.

Name of Faculty	Science and Technology
Name of Department	Zoology
Departmental Email ID	zoonacsp@gmail.com
UG Programme	B.Sc. Zoology
Programme Specific Outcomes (PSO)	
<ol style="list-style-type: none"> 7. The basic understanding about the Life sciences. 8. Fostering the curiosity and awareness among the students about the animal diversity and conservation. 9. Insights about the classical and applied areas of Zoology 10. To inspire the student to pursue for post-graduation and further academic studies in Zoology. 	
Course Outcomes (CO): F. Y. B. Sc.	
<p><u>ZO-111 Animal Diversity I</u></p> <ol style="list-style-type: none"> 3. Understand and Identify the animal diversity 4. Principles of classification of animal and terminologies 5. Binomial Nomenclature and Five kingdom Classification 6. Classification of invertebrates (Phylum Protozoa, Porifera, Cnidaria and Platyhelminthes) <p><u>ZO-112 Animal Ecology</u></p> <ol style="list-style-type: none"> 3. Understand the concept of Ecology and Ecology: Structure and composition, 4. Characteristic of Population, Population regulation and interaction 5. Community characteristics and Ecological Succession 6. Animal interaction, Competition, Beneficial and antagonistic association <p><u>ZO-121 Animal Diversity II</u></p> <ol style="list-style-type: none"> 1. Understand and Identify the animal diversity 2. Classification of invertebrates (Phylum Aschelminthes, Annelida, Arthropoda, Mollusca and Echinodermata) 3. Animal type study: <i>Asterias rubens</i> (Sea Star) <p><u>ZO-122 Cell Biology</u></p> <ol style="list-style-type: none"> 1. Importance of Cell Biology and its application 2. Structural and functional difference between Prokaryotic and Eukaryotic cell. 3. Acquaint with microscopic and micrometry techniques. 4. Understand the structure and function of various cell organelles. <p><u>ZO-113 and ZO- 123 Zoology Practical Courses</u></p> <ol style="list-style-type: none"> 4. Understanding of biological phenomenon learnt in the theory by performing experiments. 5. Development of practical and experimental skill to underlying the systematic classification of various invertebrates with help of museum specimens. 6. Practical thinking of local ecological problems for betterment of environment through sustainable development like vermicomposting and field visits and identification of pests 	

Name of Faculty	Science and Technology
Name of Department	Computer Science
Departmental Email ID	compscinacsp@gmail.com
UG Programme	B.Sc.(Computer Science)
Programme Specific Outcomes (PSO)	
<ol style="list-style-type: none"> 11. A course in problem solving and programming along with a course in database fundamentals forms the preliminary skill set for solving computational problems. 12. Career Advancement courses are introduced in both semesters to cover additional areas of Computer Science. 13. Software engineering concepts that are required for project design are also introduced. 14. Theory courses are adequately supplemented by hands-on practical courses. 15. To develop problem solving abilities using a computer. 16. To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems. 17. To prepare necessary knowledge base for research and development in Computer Science. 	
Course Outcomes (CO): F.Y.B.Sc. (Computer Science)	
<u>CS-111: Problem Solving using Computer and 'C' Programming</u>	
<ol style="list-style-type: none"> 1. Explore algorithmic approaches to problem solving. Develop modular programs using control structures and arrays in 'C'. 	
<u>CS-112: Database Management Systems</u>	
<ol style="list-style-type: none"> 1. Solve real world problems using appropriate set, function, and relational models. 2. Design E-R Model for given requirements and convert the same into database tables. 3. Use SQL. 	
<u>MTC-111: Matrix Algebra</u>	
<ol style="list-style-type: none"> 1. Apply mathematical methods involving arithmetic, algebra, geometry, and graphs to solve problems. 2. Represent mathematical information and communicate mathematical reasoning symbolically and verbally. 3. Interpret and analyse numerical data, mathematical concepts, and identify patterns to formulate and validate reasoning. 	

MTC-112: Discrete Mathematics

1. To develop logical thinking and its application to computer science (to emphasize the importance of proving statements correctly and de-emphasize the hand-waving approach towards correctness of an argument).
2. The subject enhances one's ability to reason and ability to present a coherent and mathematically accurate argument.

ELC-111 :Semiconductor Devices and Basic Electronic Systems

1. To study various types of semiconductor devices.
2. To study elementary electronic circuits and systems

ELC-112 : Principles of Digital Electronics

1. To get familiar with concepts of digital electronics .
2. To learn number systems and their representation .
3. To understand basic logic gates, Boolean algebra and K-maps

CSST 111: Descriptive Statistics I

1. Organize, manage and present data.
2. Analyze statistical data graphically using frequency distributions and cumulative frequency distributions.
3. Analyze statistical data using measures of central tendency, dispersion and location.

CSST 111: Descriptive Statistics I

1. Analyze statistical data graphically using frequency distributions and accumulation frequency distributions.
2. Analyze statistical data using measures of central tendency, dispersion and location.
3. Use the basic probability rules, including additive and multiplication laws, using the terms, independent and mutually exclusive events

Name of Faculty	Science and Technology
Name of Department	Mathematics
Departmental Email ID	mathsnacsp@gmail.com
UG Programme	B.Sc. Mathematics (F.Y.B.Sc.)
Programme Specific Outcomes (PSO)	
<ol style="list-style-type: none"> 1. Enhancing students' overall development and to equip them with mathematical modelling abilities, problem solving skills, creative talent and power of communication necessary for various kinds of employment. 2. Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study 3. A student should get adequate exposure to global and local concerns that explore them many Aspects of Mathematical Sciences 4. A student be able to apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion 5. A student should be made aware of history of mathematics and hence of its past, present and Future role as part of our culture. 	
Course Outcomes (CO): F.Y.B.Sc. Mathematics	
<u>MT-111 : Algebra</u>	
<ol style="list-style-type: none"> i) The Mathematical maturity of students in their current course and future courses shall develop. ii) The student develops theoretical, applied and computational skills in Algebra. 	
<u>MT-112 Calculus-I</u>	
<ol style="list-style-type: none"> i) Give the students a sufficient knowledge of fundamental principles, methods and a clear perception of in numerous power of mathematical ideas and tools for solving Calculus Problems and know how to use them by Modelling, solving and interpreting. 	
<u>MT-113 : Mathematical Practical Course:</u>	
<ol style="list-style-type: none"> i) The student get knowledge of Maxima Software, using this software they can solve mathematics problems. ii)The students get knowledge and Skill of command of Mathematics language. 	

MT-121 : Analytical Geometry

- i) A student should be able to recall basic facts about Analytical Geometry and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies.
- ii) A student should get a relational understanding of Analytical Geometry concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning

MT-122 : Calculus-II

- i) Reflecting the broad nature of the Calculus and developing mathematical tools for continuing further study in various fields of science and technology.
- ii) The student gains confidence in proving theorems and solving problems in Calculus.

MT-123 : Mathematical Practical Course:

- i) Maxima software is employed in education and research by mathematicians, physicists, engineers, and economists, coping with the major commercial CAS systems of today. Therefore students will get updated.