

## Programme Outcome

### B.Sc

The Board of Studies (UG), Acharya Nagarjuna University, recognizes that curriculum, course content and assessment of scholastic achievement play complementary roles in shaping education. It is of the view that assessment should support and encourage the broad instructional goals such as basic knowledge of the discipline of Physics including theories and techniques, concepts and general principles. This should also support the ability to probe and obtain solutions to physical questions by use of qualitative and quantitative reasoning and by experimental investigation.

#### Aims::

1. Read, understand and interpret physical information – verbal, mathematical and graphical.
2. Impart skills required to gather information from resources and use them.
3. To give need based education in Basic science of the highest quality at the undergraduate level.
4. Offer courses to the choice of the students.
5. Perform experiments and interpret the results of observation, including making an in depth study of the given subjects
6. B Sc Programme, has an assessment of experimental uncertainties.
7. Provide an intellectually stimulating environment to develop skills and enthusiasms of students to the best of their potential.
8. Use Information Communication Technology to gather knowledge at will.
9. Attract outstanding students from all backgrounds.

#### Objectives:

The syllabi are framed in such a way that it bridges the gap between the plus two and post graduate levels by providing a more complete and logical framework in almost all areas of basic sciences.

### Physics:

SL. No	Semester	Paper Title	Outcome
1	First	Paper I: Mechanics & Properties of Matter	This paper would endow the students to acquire skills and practical knowledge, which help the students in their everyday life apart from acquiring knowledge of Properties of Matter. This course will also provide a theoretical basis for doing experiments in related areas.
2	Second	Paper II: Waves & Oscillations	This paper imparts knowledge related to the energy that is inherent in kinetic and static

			forms. This is evident in the vibrating strings both longitudinally and in traversing mode. The basic information related to ultrasonics prepare the students for probing deeper in to the practical applications in industry and in medical fields.
3	Third	Paper III: Wave Optics	This course aims at providing the basic tenets in Wave optics. The syllabus prepares the students to learn interference diffraction and polarization with many experiments associated with it .The students are also exposed to the latest developments in Lasers, Fiber Optics and Holography.
4	Fourth	Paper IV: Thermodynamics & Radiation Physics	This course is to develop a theoretical and working foundation of Thermal and Radiation Physics. This syllabus encompasses various applications related to topics in material science and the physics of condensed matter.
5	Fifth	Paper V: Electricity, Magnetism and Electronics	<p>This course is expected to provide a sound foundation in Electricity and Magnetism.</p> <p>Electricity and Magnetism have the key role in the development of modern technological world. Without electric power and communication facilities, life on earth stands still. A course in electricity and Magnetism is thus an essential component of physics programme at graduate level.</p> <p>Students should familiarise with electrical circuits, electrical connections, and storage devices their working etc. which will be quite useful in their daily life. Theoretical and practical knowledge about signal generating circuits enable the students to identify different communication techniques which will be useful in their daily life and higher studies</p> <p>This course is intended to provide</p>

			<p>theoretical and practical knowledge about electronics. The knowledge of basic principles and applications of Electronics is most necessary for a physics student. Practical in this course will definitely enable the students to service or repair basic electronic equipments like radio, television, electronic chokes, lamps etc. This course is expected to provide necessary back ground for applications of electronics in mathematical computation. Students will familiarise with logic circuits and their applications which enables them to design logic circuits of their own.</p>
		Paper VI: Modern Physics	<p>This course intended to explore the interior of nucleus and interaction between nucleons. Students will get good theoretical basis of nuclear fission, which is the basis of atom bomb and nuclear fusion, basis of hydrogen bomb and energy production in stars. Students also familiarize with fundamental particles of nature and how these particles are interacting with each other and matter.</p> <p>This study also attempts to explain various types of phenomena like electro-magnetic properties, super-conductivity and super fluidity. Thermal, electrical, optical and magnetic properties of matter provide a strong foundation in that direction</p>
6	Sixth	Elective Paper VII (C): Renewable Energy	<p>This paper exposes the students to the Global Energy Scenario and Indian Energy Scenario while discussing the conservation methods. The knowledge of Renewable Energy Sources help them to explore the Solar, Wind, Ocean and Bio Energy sources.</p>

## Zoology:

Sl.No	Semester	Paper	Outcome
1	I	Animal Diversity Non-Chordate	Syllabus is designed to know the general characters, classification of all Invertebrates and anatomy of some animals. So the student is able to identify, classify the animal and study the internal organs (Basic Organs)
2	II	Animal Diversity Chordate	Syllabus is designed to know the general character, classification of all chordate which are highly evolved than the vertebrates. So the student is able to understand the gradual evolution of animals from lower organism to higher organism and also the evolution complex internal organs.
3	III	Cell Biology, Genetics and Evolution	The paper includes Cytology, Genetics which help the students understand the basic structure and function of cells of various types Genetics helps the understand various genetic abnormalities, help to understand the role of DNA in some criminal activities (identification of criminal). Hence both these branches of Zoology are most developing areas of biological sciences. Evolution helps to acquire knowledge about evolutionary history of earth and organism and to know their systematic position.
4	IV	Embryology, Physiology & Ecology	Embryology helps to understand the development of organism and production of better varieties that are viable and productive . Physiology helps to understand the functioning of various organs in our body, which is vital for a doctor to identify the diseases that may occur. Ecology help to understand the relationship between non-living things and living things and how both are inter-dependent. Better understanding helps to protect and save the environment.
5	V	Bio-Technology & Animal Husbandary	Bio-Technology helps to understand the role of Genetics and its applications in bio sciences, develops critical thinking skills and research aptitude among the students. Animal Husbandry is also a well developed branch which helps the production of high yielding varieties of fowls, sheeps, goat, buffaloes, etc., which meets the nutritional needs of the growing population.
6	VI	Immunology & Aqua Culture	Immunology makes students aware of Pathogens health related issues-- their origin and treatment. Aqua Culture is also well developed branch of Zoology helps students to establish their own aqua farm (self – employment). Economic growth of the country is also dependent on aqua products.

## Mathematics:

Sl.No	Semester	Paper	Outcome
1	I	Differential Equation and its Applications	<p>Students will be able to :</p> <p>Exact the solution of differential equation of the first order and of the first degree by variable separable, homogenous, non-homogenous, exact, non-exact , linear and Bernoulli's Method.</p> <p>Find a solution of differential equations of first order but not first degree by using of solvable for P, x and y.</p> <p>Compute all the solutions of second and higher order linear differential equations with constant co-efficients and linear differential equations with variable co-efficients.</p>
2	II	Three Dimensional Geometry	<p>Describe the various forms of a plane, line, spear, cone and cylinder.</p> <p>Find the angle between planes, bisector planes, perpendicular distance from a point to a plane, image of a line and a plane intersection of two lines.</p> <p>Compute the angle between the plane and cone.</p> <p>Find the equation of right circular cone and cylinder</p>
3	III	Modern Algebra	<p>Define sub-group, normal sub-group, center of a group and normalizer of a sub-group</p> <p>Prove Lagranges Theorem, Fundamental Theorem of Homomorphism, Cayley's Theorem.</p> <p>Define cyclic group and prove every sub-group of a cyclic group is cyclic, every group of prime order is cyclic.</p> <p>Define ring, integral domain, field and skew field.</p> <p>Prove every field is an integral domain and every finite integral domain is a field.</p> <p>Define ideal, principle ideal. Prime ideal and maximal ideal and prove theorems on ideals.</p>
4	IV	Sequences, Series, Continuity, Derivability and Rieman's Integration	<p>Define different types of sequences</p> <p>Prove Properties of convergent and divergent sequences</p>

			<p>Prove Cauchy's first theorem on limit</p> <p>Solve the problems on convergent, divergent sequences</p> <p>Define series and solve the problems on Cauchy's nth root test, condensation test and Leibnith's test and prove the theorems.</p> <p>Solve the problems in continuity, differentiation and Reimann's Integration</p>
5	V	Linear Algebra	<p>Definition of Vector Space, Linear Combination, Linearly dependent, independent basis, inner product space, rank, nullity, etc.</p> <p>Proof of theorems on basis, dimensions, Cayley Hamilton, Schwatz's inequality, Bessel's inequality and Gram Schimidt or thogonalisation process.</p>
6	VI	Numerical Analysis	<p>Definition of basic concepts of <math>\Delta</math>, E, <math>\nabla</math></p> <p>Solve problems using Neuton forward and backward, Gauss forward and backward, Bessel's and Sterling's formulae.</p> <p>Find the solutions of ordinary differential equations of first order by Euler, Talylor and Runge-Kutta method.</p>
		Integral Transforms	<p>Define Laplace transforms and Learn formulae in Laplace transforms and inverse Laplace transforms.</p> <p>Solve problems on differential equations, integral equation, by using Laplace transforms.</p> <p>Definition of Fourier Series, Sine and Co-Sine integrals.</p> <p>Prove Parseval's identity for transforms</p> <p>Find the finite Fourier's sine, co-sine transform of the given function.</p>

## Computer Science:

Sl.No	Semester	Paper	Outcome
1	I	PAPER I - COMPUTER FUNDAMENTALS AND PHOTOSHOP	To explore basic knowledge on computers and Photoshop's beauty from the practical to the painterly artistic and to understand how Photoshop will help you create your own successful images.
2	II	PAPER II - PROGRAMMING IN C	<ol style="list-style-type: none"> <li>1. Appreciate and understand the working of digital computer</li> <li>2. Analyse a given problem and develop an algorithm to solve the problem.</li> <li>3. Improve upon a solution to a problem.</li> <li>4. Use the 'C'-language constructs in the right way.</li> <li>5. Design, develop and test programmes written in C.</li> </ol>
3	III	PAPER III - OBJECT ORIENTED PROGRAMMING USING JAVA.	<ol style="list-style-type: none"> <li>1. Understand the concept and underlying principles of Object - oriented programming</li> <li>2. Understand how object oriented concepts are incorporated into the java programming language.</li> <li>3. Develop problem solving and programming skills OOP concept.</li> <li>4. Understand the benefits well structured programme.</li> <li>5. Develop the ability to solve real-world problems through software development in high-level programming language like java.</li> <li>6. Develop efficient java applets and applications using OOP concept.</li> </ol>
4	IV	PAPER IV - DATA STRUCTURES	<ol style="list-style-type: none"> <li>1. Describe how arrays, records, linked structures, stacks, queues, trees and graphs are represented in memory and used by algorithms.</li> <li>2. Describe common applications for arrays, records, linked structures , queues, trees and graphs.</li> <li>3. Write programmes that use arrays, records, linked structures, stacks, queues, trees and graphs</li> <li>4. Demonstrate different methods traversing trees.</li> <li>5. Compare alternative implementation of data Structures with respect to performance.</li> <li>6. Compare and contrast the benefits of dynamic and static data structures implementations.</li> </ol>
5	V	PAPER V - DATA BASE MANAGEMENT SYSTEM	<ol style="list-style-type: none"> <li>1. Design and model of data in database</li> <li>2. Store, Retrieve data in database.</li> </ol>

6	VI	PAPER VI - SOFTWARE ENGINEERING	<ol style="list-style-type: none"> <li>1. Ability to gather and specify requirements of the software projects.</li> <li>2. Ability to analyse software requirements with existing tools.</li> <li>3. Able to differentiate different testing methodologies.</li> <li>4. Able to understand and apply the basic project management practices in real life project</li> <li>5. Ability to work in a team as well as independently on software projects.</li> </ol>
	VII	PAPER VII -WEB TECHNOLOGIES	<ol style="list-style-type: none"> <li>1. To understand the web architecture and web services.</li> <li>2. To practise latest web technologies and tools by conducting experiments.</li> <li>3. To design interactive web pages using HTML and Style Sheets.</li> <li>4. To Study the frame work and building blocks of .Net integrated Development Environment.</li> <li>5. To provide solutions by identifying and formulating IT related problems.</li> </ol>
	VIII	PAPER –VIII B1- DISTRIBUTED SYSTEMS	<ol style="list-style-type: none"> <li>1. To expose the fundamentals of distributed computer systems.</li> <li>2. Create models for distributed systems.</li> <li>3. Apply different techniques learned in the distributed system.</li> </ol>
		PAPER – VIII B2-CLOUD COMPUTING	<ol style="list-style-type: none"> <li>1. Compare the strengths and limitations of cloud computing</li> <li>2. Identify the architecture, infrastructure and delivery models of cloud computing</li> <li>3. Apply suitable virtualisation concept.</li> <li>4 Choose the appropriate cloud player, programming models and approach.</li> <li>5. Address the core issues of cloud computing such as security, privacy and interoperability.</li> <li>6. Design cloud services and set a private cloud.</li> </ol>

## Botany:

Schedule	Topic	Learning outcomes
Semester 1	Algae	<p>On completion of this course the students will able to....</p> <p>Develop understanding on the concept of microbial nutrition</p> <p>Increases the awareness and appreciation of human friendly algae and their economic importance.</p> <p>Examine the general characteristics of algae, reproduction and their life cycles.</p>
	Fungi	<p>On completion of this course the student will be able to...</p> <p>Identify true fungi and demonstrate the principles and application of plant pathology in the control of plant diseases.</p> <p>Demonstrate skills in laboratory, field and glass house work related to mycology and plant pathology.</p> <p>Develop an understanding of microbes, fungi and lichens and appreciate their adaptive strategies.</p> <p>Identify the common plant diseases according to geographical location and devise control measures.</p> <p>Develop critical understanding of plants diseases and their remediation.</p> <p>Understand the economic importance of fungi and various types of mushrooms.</p>

<b>Semester 2</b>	<b>Bryophytes</b>	<p>On completion of this work the students will be able to..</p> <p>Demonstrate an understanding of bryophytes.</p> <p>Develop critical understanding on morphology, anatomy and reproduction of bryophytes.</p> <p>Understanding of development of gametophyte, plant evolution and their transition to land habit.</p> <p>Demonstrate proficiency in the experimental techniques and methods of appropriate analysis of bryophytes.</p>
	<b>Pteridophytes</b>	<p>On completion of this work the students will be able to..</p> <p>Understand the development of pteridophytes and classification of pteridophytes.</p> <p>Develop critical understanding on morphology, anatomy and reproduction of pteridophytes</p> <p>Understand the development of sporophytic development and plant evolution and their transition to land habit and stellar evolution in land plants.</p>
	<b>Gymnosperms</b>	<p>On completion of this work the students will be able to...</p> <p>Demonstrate an understanding of gymnosperms.</p> <p>Develop critical understanding on morphology, anatomy and reproduction of gymnosperms.</p> <p>Understanding of plant evolution of naked seed</p>

		<p>formation.</p> <p>Understand about the fossil gymnosperms..</p>
	<b>Anatomy and secondary growth</b>	<p>On completion of this course the student will be able to..</p> <p>develop an understanding of concepts and fundamentals of plant anatomy.</p> <p>Examine the internal anatomy of plant systems and organs.</p> <p>Develop critical understanding of the evolution of concepts of organisation of shoot and root apex.</p> <p>Analyse the composition of different parts of plants and their relationships.</p> <p>Evaluate the adaptive and protective systems of plants.</p>
<b>Semester 3</b>	<b>Taxonomy</b>	<p>Classify plant systematic and recognise the importance and herbarium and virtual herbarium.</p> <p>Evaluate the importance herbaria and botanical gardens</p> <p>Interpret the roots of icbn in botanical nomenclature.</p> <p>Asses the terms and concepts related to phylogenetic systematics.</p> <p>Generalise the characters of the families according to bentham and hookers system of classification.</p> <p>Evaluate the significance of herbarium.</p> <p>Analyse the implication of biometric , numerical taxonomy and cladistics.</p>

		Able to describe the characteristic features of various families and their economic importance.
	<b>Embryology</b>	<p>Recall the history of reproductive biology of angiosperms and recognise the imp of genetic and molecular aspects of flower development.</p> <p>Understand the structure and functions of anther wall and pollen wall. Evaluate the special structure of ovule.</p> <p>Solve self incompatibility in pollination and fertilisation and relate between embryo, endosperm and seed.</p> <p>Comprehend the uses of polyembryony and apomixes with its classifications.</p>
<b>Semester 4</b>	<b>Physiology</b>	<p>Understand water relation of plants with respect to various physiological processes.</p> <p>Explain chemical properties and deficiency symptoms in plants Classify the aerobic and anaerobic respirations.</p> <p>Explain the significance of photosynthesis and respiration.</p> <p>Asses the dormancy and germination in plants.</p> <p>Differentiate anabolic and catabolic pathways of metabolism.</p> <p>Recognise the importance of carbon assimilation in photorespiration.</p> <p>Explain the atp synthesis. Interpret the biological nitrogen</p>

		<p>fixation in metabolism.          Know about the role of phytohormones and their synthesis.</p>
<b>Semester 5</b>	<b>paper v</b>	
	<b>Cell biology</b>	<p><b>Cell biology and bio molecules</b>          On completion of the course the student will be able to..</p> <p>Develop understanding on chemical bonding among molecule.</p> <p>Identify the concepts that explains chemical composition and structure of cell wall and membrane.</p> <p>Classify the enzymes and explain mechanism of action and structures.</p> <p>Compare the structure and function of cells and explain the development of cells.</p> <p>Describe the between the structure and function of biomoleculesanalyse the structures and chemical properties of dna and rna through carious historic experiments.</p> <p>Gain an understanding of various steps in transcription, protein synthesis and protein modification</p>
	<b>Genetics</b>	<p>Have conceptual understanding of laws of inheritance, genetic basics of loci and alleles and their linkage.</p> <p>Develop critical understanding of chemical basis of genes and their interactions at population and evolutionary levels.</p> <p>Analyses the effects of</p>

		<p>mutations on gene functions and dosage.</p> <p>Examine the structures, function and replication of dna.</p> <p>Evaluate the experiments establishing central dogma and genetic code.</p>
	<b>Plant breeding</b>	<p><b>Plant breeding</b> On completion of this course the student will be able to...</p> <p>Develop conceptual understanding of plant genetic resources, plant breeding, gene bank and gene pool.</p> <p>Familiarize with genetic basis of heterosis.</p> <p>Classify sexual and asexual methods of reproduction.</p> <p>Explain monogenic and polygenic inheritance.</p> <p>Reflect upon the role of various nonconventional methods used in crop improvement.</p>
	<b>Biotechnology &amp; crop improvement</b>	<p>Develop conceptual understanding of cell wall degradation enzymes and cell fractionation.</p> <p>Classify different types of chromatography techniques Explain the principles of light microscopy, compound microscopy, fluorescence microscopy and confocal microscopy.</p> <p>Apply suitable strategies in data collection and disseminating research findings.</p> <p>Understand the concepts and</p>

		<p>fundamentals of plant biotechnology and genetic engineering.</p> <p>Develop their competency on different types of plant tissue culture.</p> <p>Analyse the enzymes and vectors for genetic manipulations.</p> <p>Examine gene cloning and evaluate different methods of gene transfers.</p> <p>Critically analyse the major concerns and applications of transgenic technology.</p>
<b>Semester 5</b> <b>paper vi</b>	<b>Ecology</b>	<p>Understand core concepts of biotic and abiotic.</p> <p>Classify the soils on the basis of physical ,chemical and biochemical compounds</p> <p>Analysis the phytogeography o phytogeographical division of india</p> <p>Evaluate the energy sources of ecological system</p> <p>Assess the adaptation of plant in relation to light, temperature , water wind and fire</p> <p>.</p>
	<b>Phytogeography</b>	<p>Understand the distribution of plants all over the world.</p> <p>understand the course of evolution.</p> <p>Understand the concept of speciation.</p> <p>Able to understand the geographical timescale.</p>

	<b>Biodiversity</b>	<p>On completion of this course the student should be able to..</p> <p>understand the diversity in organisms and their habitats.</p> <p>Knows about hotspots,botanical gardens, sanctuaries etc..</p> <p>Able to differentiate vulnerable, endangered, and endemic species and their protection</p>
<b>Semester 6 paper vii</b>	<b>Nursery</b>	<p>On completion of this course the student should be able to..</p> <p>Understand the nursery management techniques..</p> <p>Should bale to find new methods and techniques in plant growth n development.</p> <p>should be able to understand about the biological fertilisers and vermiculture etc.</p> <p>Should develop aesthetic appreciation.</p> <p>Should understand the reproductive methods in various plants.</p>
	<b>Gardening</b>	<p>Design various types of gardens according to the culture and art of bonsai.</p> <p>Apply basic principles and component of gardening.</p> <p>Conceptualise flower arrangement ad bio aesthetic planning.</p> <p>Distinguish between formal informal and free style garden.</p> <p>Establish and maintain special types of gardens for outdoor and indoor landscaping.</p>

	<b>Floriculture</b>	<p>On completion of this course the student should be able to..</p> <p>Cultivation of flowering and ornamental plants for gardens and for floristry.</p> <p>New varieties of flowering plants will be produced through plant breeding techniques.</p> <p>Should know about green house technology and their maintenance for flower production..</p>
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## Geology:

Sl.No	Semester	Paper	Outcome
1	I	Physical Geology & Crystallography	Students learn about physical geology and its various forms. The formations of land forms, rocks and the volcanic eruptions, seismic zones of India and world. The systematic study of formation, morphology and classification of crystals
2	II	Mineralogy	This paper exposes the students to minerals and their formation. The availability of minerals and their significance according to their physical properties is also studied
3	III	Igneous and Sedimentary Petrology	Students have an in depth learning of formation of Earth and rocks. It also includes the study of kinds of rocks: Igneous and Sedimentary rocks.  The students are able to understand the economic importance and their availability.
4	IV	Metamorphic Rocks & Structural Geology	The process of forming of rocks is learnt by students. They also study the metamorphic rocks like Marble, Gneiss, schist, Charnokite, Quartzite, etc. Structural Geology explores the types of structures and importance of rocks on Earth's crust.
5	V A	Indian Geology and Paleontology	This paper studies the physiographic divisions of India. It has the content that focus on different types of rocks or different ages by which the Indian sub-continent is made. The valuable minerals that occur in the rocks of India are also studied.  Paleontology studies the history of Earth, life,

			evolution of life. The study of fossils helps the understanding of early organisms on Earth
	V B	Economic Geology	Economic Geology extends knowledge of different metals and their origin, occurrence, distribution and uses. The economic wealth of any nation depends on its mineral wealth.
6	VI	Hydrogeology	It is the study of ground water, cycle, origin and occurrence .It equips the students on how to conserve rain water, how to reduce pollutants in ground water for solving the water crisis.

## Chemistry:

The programme enable the students:

To understand basic facts and concepts in chemistry while retaining the existing aspects of Inorganic, Organic and Physical chemistry.

To develop the ability to apply principles of chemistry.

To develop problem solving skills.

To develop skills in proper handling of apparatus and chemicals.

To be exposed to different processes used in industries.

Sl.No	Semester	Paper	Outcome
1	I	Inorganic and Organic Chemistry	To impart solvent a broad outline of the methodology of science Inorganic and organic chemistry. The student will learn about the importance and applications of some Inorganic compound and also some general application of the compounds, as per inorganic chemistry is concerned. As per organic chemistry is concerned it gives brief idea about the significance of organic chemistry and some basic (compounds) concepts relevant to

			organic chemistry. This makes student to have exposure to various emergency new areas of organic chemistry.
2		Practical: Salt Analysis	To develop skill in quantitative estimation using salt analysis.
3	II	Physical and general Chemistry	To impart student a broad outline the methodology of physical and general chemistry. As per physical chemistry is concerned student will get a view of structure and properties of solid crystal and liquid crystals and to know the characterization of crystals using x-ray defraction. It also imparts about impart accepts of gaseous state also. As per general chemistry is concerned it gives a knowledge about the surface application. It also impart theoretical knowledge about chemical bonding and sterio chemistry of carbon compounds.
4		Practical: Mixture Analysis	To develop skills for qualitative analysis in the field of mixture analysis. It develops to estimate anions and cat ions in the given mixture.
5	III	Inorganic and Organic Chemistry	To understand the general characteristics of d and f block elements To get knowledge about the bonding in metals and theories of metal bonding. To improve the level of understanding about metal carbonyls and structure of metal carbonyls As per organic chemistry is concerned, it imparts about the reaction mechanisms of some organic compounds like halogen compounds, carboxylic acids and derivatives of it. It also gives knowledge about the classification of above said compounds. It gets some insight into the chemistry of hydroxyl compounds, halid compounds, carbonyl compounds and carboxylic acids.
6		Practical : Volumetric Analysis and Functional groups of Organic Compounds	To develop the skills for qualitative analysis of different branches of volumetric analysis and to develop skills required for qualitative analysis of organic compounds.
6	IV	Physical and general Chemistry	Physical chemistry provides an insight in to the characteristics of different solutions and colligative properties of solutions. It also gives about the knowledge how number of particles of solute have impact on colligative properties It develops skills in preparing data analysis of phase rule. It imparts about the applications and knowledge of

			<p>electro chemistry and some principles of electricity to aqueous solutions.</p> <p>General chemistry gives a thorough knowledge about the chemistry of some selected functional groups with a view to develop proper aptitude towards the study of general chemistry and its application in the study of structure of atom bonding in molecules and molecular spectroscopy. It imparts a thorough knowledge and fundamentals of infra red, ultra violet and NMR spectroscopy.</p>
7		Practical: Physical and IR spectral analysis	<p>It imparts about the conductivity in the concentrations of solutions like acids and bases.</p> <p>Spectral analysis gives an idea about the IR spectra of functional groups like hydroxyl, carbonyl, amino and aromatic groups.</p>
8	V	Inorganic, Physical and Organic chemistry	<p>Coordination chemistry provides students to know the structure and bonding of important compounds.</p> <p>To understand the magnetic properties of complexes and to know how magnetic moment can be employed for the interpretation of structures.</p> <p>To study the reaction mechanisms of metal complexes.</p> <p>To get an overview of stereo chemistry of coordination compounds.</p> <p>To know about the various theories of coordination compounds.</p> <p>To get knowledge about isomerism of compounds.</p> <p>Course Outcome of organic chemistry:</p> <p>To know about the chemistry of nitro compounds and amines</p> <p>To get knowledge about the reactivity and mechanism of nitro and amine compounds.</p> <p>It also imparts about the knowledge of steric effects and substituent effects.</p> <p>Course Outcome of Physical Chemistry:</p> <p>To know the basic concepts of the classified thermodynamics and to learn the aspects of various processes and reactions in the thermodynamics.</p> <p>To know about various laws of thermodynamics and applications</p>
9		Practicals : Organic Chemistry	The student will get training for systematic quantitative analysis of simple organic compounds

10	VI	Inorganic, Organic and Physical Chemistry	<p>To know about labile and inert complexes and the substitution reactions of metals compounds .</p> <p>To impart trans effect and applications of complexes.</p> <p>To impart the biological significance of metals like Na, K, Ca, Fe, iCo, Ni, Cu, Zn and Cl</p> <p>To know about the functions of hemoglobin and chlorophyll</p> <p>Outcome of Physical Chemistry:</p> <p>To know different theories of reaction rates and factors affecting reaction rates</p> <p>To know different rate reactions and some important aspects like affect of temperature and pressure on rate of reaction</p> <p>To have an idea about the important aspects of photochemistry</p> <p>Outcome of Organic Chemistry:</p> <p>To know about the basics of heterocyclic compounds, preparation and properties of compounds</p> <p>To know about the reactivity and aromatic character of the compounds</p> <p>To know about different types of carbohydrates and the structures of the carbohydrates</p> <p>To get an idea of amino acids and classification of the acids and chemical reactivity of the amino acids</p>
11		Practical : Physical Chemistry	To verify some important principles of Physical Chemistry and to determine various physical properties.
12		Environmental Chemistry	<p>Outcome of Environmental Chemistry:</p> <p>To get aware of environmental issues like air pollution, water pollution and toxics of metals.</p> <p>To know how pollution of environment is responsible for the loss of large number of living organism on the earth</p> <p>To know about the greatness of the nature in the minds of student and needs to prevent it</p>
13		Practical: Volumetric Analysis	To develop the skills of quantitative estimation of volumetric method.

### Programme Outcome

**B.Com**

Sl.No	Semester	Paper	Outcome
1	I & II	Fundamentals of Accounting	<p>To impart the knowledge in basics of Accounting</p> <p>To impart the knowledge of various accounting concepts</p> <p>To instill the knowledge about accounting procedures, methods and techniques.</p> <p>To acquaint them with practical approach to accounts writing by using software .</p> <p>Ascertaining profit or loss of business operations</p> <p>Ascertaining financial position of the business</p> <p>Providing accounting information tool users.</p>
2		Business Economics	<p>To expose students of commerce to basic micro economic concepts and inculcate an analytical approach to the subject matter.</p> <p>To stimulate the student interest by showing the relevance and use of various economic theories.</p> <p>To apply economic reasoning to problems of a business. To study the behavior of the economy as a whole.</p> <p>To study the relationship among broad aggregates.</p>
3		Business Organisation	<p>Economic objectives</p> <p>Social objectives</p> <p>Human objectives</p> <p>National objectives</p> <p>Global objectives</p>
4			<p>To make the students aware about the business environment</p> <p>To know the monetary policy</p> <p>To know the economic policies of the Government</p> <p>To know the transfer of technology and its main methods</p> <p>To create entrepreneurial awareness</p>
5	III	Corporate Accounting:	<p>To enable the students to develop awareness about corporate accounting in conformity with the provisions of a Companies Act and accounting as per Indian accounting standards.</p> <p>To make aware the students about the conceptual aspects of corporate accounting.</p> <p>To enable the students to develop skills for computerized accounting.</p> <p>To enable the students to develop skills about accounting standards</p>

6		Banking Theory and Practice	<p>To acquaint the students with the fundamentals of Banking.</p> <p>To develop the capability of students for knowing banking concepts and operations</p> <p>To make the students aware of banking business and practices</p> <p>To give thorough knowledge of banking operations</p> <p>To enlighten the students regarding the new concepts introduced in the banking system</p>
7		Business Statistics	<p>To know how to evaluate and published numerical facts</p> <p>To interpret the result of sampling or to employ statistical methods of analysis to make inferences in their works</p> <p>To prepare competitive examinations</p> <p>To understand the concept of simple interest, compound interest and the concept of EMI.</p> <p>To understand the concept of shares and to calculate dividend.</p> <p>To utilize the subject in surveys and research problems.</p>
8	IV	Accounting for Service Organizations	<p>To know about the accounting systems in service organizations</p> <p>Identification and recording of transactions</p> <p>Ascertainment of results</p> <p>Ascertainment of financial affairs</p> <p>Keeping accounts of cash</p> <p>Control over assets and liabilities.</p> <p>Controlling money defalcation and cost</p> <p>Providing economic data</p> <p>Helping tax fixation</p>
9		Business Laws	<p>To acquaint students with the basic concepts, terms and provisions of mercantile and business laws.</p> <p>To develop the awareness among the students regarding these laws affecting business, trade and commerce.</p>
10		Income Tax	<p>To understand the basic concepts and to acquire knowledge about computation of income, submission of income tax-return, advance tax and tax deducted at source, tax collection authorities under the income tax Act 1961.</p> <p>The primary purpose of taxation is to raise revenue to meet huge public expenditure</p> <p>To increase the revenue of Indian Government</p>
11	V	Cost Accounting	<p>To know the basic concepts of costing</p>

			<p>To know the elements of cost          To know the ascertainment of material and labour cost          Determination of selling price          Cost control and cost reduction.          Ascertaining the profit of each activity          Assisting management in decision making</p>
12		Goods and Services Tax (GST)	<p>To create a common market across the country          To prevent unhealthy competition among the states          To simplify tax administration and complaints          To give input tax credit across the value at every stage          To minimize cascading effect on taxation          To minimize tax slab rates in increase tax base</p>
13		Commercial Geography	<p>To acquaint the students of commercial Geography with its bases regarding commercial activities in different environments, referring to world resources in general and Pakistan in particular.          To comprehend the importance of manufacturing industries and handicrafts in the world as commercial activities          Growth of population, its trends and distribution          To understand the utilization of human resources</p>
14			<p>A central bank pursues a low and stable rate of inflation          It aims for a high stable real growth and high employment rate in the economy          It promotes a stable financial market and financial institutions          To maintain interest rates          To maintain a stable exchange rates</p>
15		Rural and Farm Credit	<p>To provide ready credit to the rural poor, especially small and marginal farmers and agricultural labourers at a reasonable rate of interest</p>
16	V & VI	Project Work	<p>To apply and adopt a variety of problem-solving strategies to solve problems          To improve thinking skills          To promote affective mathematical communication          To develop mathematical knowledge through problem-solving in a way that increases students' interest and confidence          To provide learning environment that stimulates and enhance affective learning          To develop positive attitude towards mathematics</p>
17	VI	Marketing	<p>To create awareness about market and marketing          To establish link between commerce or business and marketing          To understand the basic concepts of marketing          To understand marketing philosophy and generating</p>

			<p>ideas for marketing research</p> <p>To know the relevance of marketing in modern competitive world</p> <p>To develop an analytical ability to plan for various marketing strategies</p>
18		Management Accounting	<p>Better planning for future policies</p> <p>Controlling management performance</p> <p>To motivate the workforce</p> <p>Up to date financial information</p>
19		Auditing	<p>To acquaint themselves about the concept and principles of auditing, audit process and assurance standards</p> <p>To get knowledge about preparation of audit reports.</p>
20		Financial Services	<p>Maintain the public confidence in the financial system</p> <p>Facilitate the deterrence of financial crimes</p> <p>Supervise financial services, licenses in accordance with legislation, regulations and course</p> <p>Facilitate the development of financial services sector</p> <p>Promote best practices, mutual assistance and exchange of information</p>
21		Marketing of Financial Services	<p>To acquaint the students with financial markets and its various segments</p> <p>To give the students and understanding of the operations and developments in financial markets in India</p> <p>To enable them to gain an insight into the functioning and role of financial institutions in the Indian Economy</p>

