

SCNR. GOVERNMENT DEGREE COLLEGE :: PRODDATUR

B.COM COURSE OUTCOMES

S.No	Course Name	Course Outcomes
1	Financial Accounting-I	<ol style="list-style-type: none"> 1.To learn basic fundamentals of accounting. 2.How to prepare various types of books in accounting. 3. Importance and how to prepare trial balance , to know various types of errors and its rectifications 4.Importance of bank reconciliation statement and how to prepare bank reconciliation statement by using the pass book and cash book. 5. To know the profit or loss of the business and its financial position at the end of the year.
2	Business Organization And Management	<ol style="list-style-type: none"> 1. To know the various types of business , trade, industry and commerce. 2. To know the various functions of business and how to enter into the new business. 3. To enable students on the various types of companies in India 4. To know how to establish the companies 5. To know how to maintain , prepare planning and decentralization of authority in the business.
3	Business Economics	<ol style="list-style-type: none"> 1. To have an idea on the various types of the activities and its importance 2. To enable students the demand determines in the fixation of the price of a product. 3.To know the various types of costs and revenues in the business.
4	Financial Accounting-II	<ol style="list-style-type: none"> 1. To know the reasons for depreciation on various assets and how to calculate the depreciation. 2. To know the various types of reserves and provisions and its users. 3. To have an idea on various types of bills and its uses in the business. 4. To know the consignment business and its importance., How to calculate profit or loss in the consignment business. 5.To enable students on the joint venture business and its uses in the present marketing system.

5	Business Environment	<ol style="list-style-type: none"> 1.To know the various types of environment in the business in India and how the various types of environments determine the business. 2. To understand which factors determines the development in India. 3.To know the various types of plans and NITI AYOOG 4.To understand the various types of policies implimented in Indian economy system since 1991.
6	Business economics-II	<ol style="list-style-type: none"> 1. To know the market structure,how to determine the types of price of various markets. 2. To have an idea on the national income and to compute the national income,how many problems are faced in calculation the national income. 3. To know the functions of indian economy system,LPG,WTO.
7	Corporate Accounting	<ol style="list-style-type: none"> 1.To know the various types of shares,its importance,and how the shares are issued to the public. 2.To know the various types of debentures issued by company and how to redemption of debentures. 3.To know the importance of goodwill and how to compute the goodwill,shares of the company. 4.How to prepare the final accounts as per companies act 2013 as per schedule II &III.
8	Business Statistics	<ol style="list-style-type: none"> 1. To know the importance of statistics,how to prepare best questionnaire,and various methods for collection of data and how to presentation in tabulation & diagrammatic. 2. To know the various types of measures of central tendency and its importance. 3. To know the importance of co relation and regression , how to calculate the correlation and regression. 4. To know the importance of index number its importance todays market conditions
9	Banking Theory and Practice	<ol style="list-style-type: none"> 1. To have knowledge on the various types of banks in India and its functions. 2. To know the various development banks in India that is IDBI, NABARD etc. 3. To know about the customer andf banks, relationship between banker and customer, KYC Norms.

10	Accounting for Service Organization	<ol style="list-style-type: none"> 1. To know the how many types of service organisations as per companies act 2013 section-8. 2. To know double accounting system and how to prepare various types of accounts in electricity companies 3. To understand as per BRA1969 legal provisions relating to preparation of final accounts in banking companies. 4. To enable students what is meant by insurance, various types of insurance and its importance.
11	Business Laws	<ol style="list-style-type: none"> 1. To know about the contract and various types of contracts as per Indian contract 1872. 2. To know the offer and acceptance of a contract and its legal essential elements. 3. To have an idea on who are eligible for contracts. 4. To know the implied conditions and warranties as per sale of goods act 1930.
12	Income Tax	<ol style="list-style-type: none"> 1. To have knowledge on the basic concepts as per income tax act 1961. 2. To know how to compute the total income from various heads of income and deductions eligible as per section 80 C to 80 (U). 3. To know how to compute the tax liability of assessee as per income tax 1961 along with present slab rates. 4. To know the meaning of GST and its importance of calculations.
13	Cost Account	<ol style="list-style-type: none"> 1. To know the various types of costs and how to prepare cost sheet in the production department. 2. To have knowledge on how to control the materials and how to issue the materials from purchasing department to production department. 3. To know the various types of payments to the labour and its importance. 4. To have knowledge on the various types of methods of costing.

14	Commercial Geography	<ol style="list-style-type: none">1. To know the internal structure of the earth and global warming.2. To have an idea on the various types of agriculture crops and soils in India.3. To know the students the status of forests in A.P. as per Forests Rights act 2006.4. Students know the various types of minerals and mining in India.5. To know the various types of water resources and how many types of production measures on water resources.
----	---------------------------------	---

15	Central Banking	<ol style="list-style-type: none"> 1. To understand the students on various types of banks and recent trends in central bank functions. 2. To enable the students about RBI, its constitution and governanace as per RBI Act. 3. Students know that various types of monitory policy statements of RBI. 4. Students understand how to control the currency by the RBI.
16	Marketing	<ol style="list-style-type: none"> 1. Students understand various concepts of marketing and marketing environment. 2. To Know the students on consumer how determine buying decission process and its stages. Students know the product life cycle and how to develop new product in the market. 4. To know the students on various factors influencing price determination and its strategies. 5. To know the how product distributes in the market through various distribution channels.
17	Auditing	<ol style="list-style-type: none"> 1. Students understand the objectives and importance of auditing. 2. Students know the how many steps to be taken at the commencement of a new audit and audit programme. 3. have an idea on auditing VS investigation. 4. To understand the students on how verification and valuation of various types of assets and liabilities. 5. Tounderstand the student on auditors qualifications, rights, duties, as per companies Act 2013.
18	Management Accounting	<ol style="list-style-type: none"> 1. To understand the students on scope and advantages of management accounting. 2. To understand the students on objectives and various methods of financial statement analysis. 3. To have an awareness on the objectives, uses and how to preparation of funds flow statement and cash flow statement. 4. To have knowledge on the importance and various types of ratios.

19	Marketing Financial Services	<ol style="list-style-type: none"> 1. To understand the students on how to managing services counters and various types of service elements. 2. To have knowledge on strategies for pricing and promotion in marketing. 3. Students understand the uses and importance of distributing services. 4. To understand the various retail financial services.
20	Financial Services	<ol style="list-style-type: none"> 1. To know the various types of activities of banking and non banking activities. 2. To enable on idea on the merchant banking services. 3. To have knowledge on the various types of leases in the financial markets. 4. To have awareness on various types of credit rating agencies.

Computer Applications

Course Out Comes

Enterprise Resource Planning

CO1: Understand ERP, its evolution, risks and benefits

CO2: Able to understand kinds of ERP software solutions and functional modules

CO3: Able to understand ERP Implementation process and its life cycle

CO4: Able to identify the success and failure factors of ERP implementation

CO5: Able to understand and differentiate between emerging trends in ERP

Computer Fundamentals and Photoshop,

CO1: Understand the terminology of computers, generations and classification of computers, I/O devices

CO2: Able to understand computer memory types, classification of computer software

CO3: Able to understand the purpose and working of Operating systems, difference between algorithms and programming languages

CO4: Able to understand and work with adobe photoshop 7

CO5: Able to create and modify the images using layers, toolbox, etc

Business Analytics,

CO1: Able to understand the terminology of business analytics, its need, process

CO2: Able to do data exploration and visualization

CO3: Able to perform automated data analysis using ANOVA

CO4: Able to perform linear and logistic regression upon datasets along with cluster analysis

CO5: Able to work with SPSS

Programming in C,

CO1: Able to write algorithm along with flowchart for the given task

CO2: Able to write and execute C programs using decision making statements and loops

CO3: Able to write modular C programs using functions and recursion

CO4: Able to use array variables, pointers and strings in C programs based on need

CO5: Able to create and work with user-defined data types using structures, unions, and enums.

Database Management Systems,

CO1: Understand the terminology , architecture of DBMS

CO2: Able to understand the difference between file system and DBMS, DBMS vendors, and data models

CO3: Able to understand the purpose of ER Models and can draw ER-diagrams for the given data.

CO4: Able to work with SQL using DDL, DML, DCL commands

CO5: Able to create and implement PL/SQL blocks using stored procedures, cursors and triggers.

Web Technology

CO1: Able to create web pages using basic HTML tags

CO2: Able to beautify the web pages using kinds of cascading style sheets

CO3: Able to implement both client and server-side validation using JavaScript

CO4: Able to understand and work with DOM model of Java Script

CO5: Able to create and implement the web pages that are responsive using Java Script and DHTML

e-Commerce

CO1: Able to understand the scope, trade cycle, and competitive advantage of e-commerce business strategy

CO2: Able to understand the business-to-business e-Commerce, EDI.

CO3: Able to understand the role of internet and extranet in the e-Commerce business strategy

CO4: Understand the public policy used for consumer and seller protection

CO5: Understand the e-Commerce infrastructure and future of e-Commerce

SCNR GDC PRODDATUR
MATHEMATICS COURSE OUTCOMES

Name of the Course: Differential equations

Course Outcome-1: To understand how to solve linear differential equations of first order and of first degree.

Course Outcome-2: To solve differential equations of first order but not of first degree.

Course outcome-3: To solve higher order linear differential equations with constant coefficients. The particular integrals of $f(D)y = e^{ax}/\sin bx/\cos bx/x^k$.

Course outcome-4: To solve higher order linear differential equations with constant coefficients. The particular integrals of $f(D)y = e^{ax}V(x)/x^kV(x)$.

Course outcome-5: To solve higher order linear differential equations with non-constant coefficients – Method of variation of parameters.

Name of the Course: Solid Geometry

Course Outcome-1: To be able to understand the concept of planes, bisector planes, pair of planes

Course Outcome-2: Able to formulate equation of the lines, test the coplanarity of lines and measure the shortest distance between two skew lines.

Course Outcome-3: Able to understand the equation of the sphere, plane section of the sphere, pole and polar plane of the sphere.

Course outcome-4: Able to measure angle between two spheres, coaxial system of the spheres, limiting point of the sphere and understand the equation of the cone, enveloping cone, right circular cone.

Course Outcome-5: Able to understand the equation of the cylinder, enveloping cylinder and right circular cylinder.

Name of the Course: Abstract Algebra

Course Outcome-1: To understand the group structures and their common properties.

Course Outcome-2: To understand the concept of subgroups, co-sets and application of Lagrange's theorem.

Course Outcome-3: To understand the concept of normal subgroups, quotient groups

Course Outcome-4: To understand the concept of group homomorphism, isomorphism and the fundamental theorem of homomorphism.

Course Outcomes-5: able to use, classify various permutation groups and cyclic groups and analyse their properties.

Name of the Course: Real Analysis

Course Outcome-1: To understand the concept of convergence and divergence and apply them to sequences.

Course Outcome-2: To understand the concept of convergence and divergence and apply them to infinite series

Course Outcome-3: To understand the concept of limit of a function and apply it to test the continuity and uniform continuity of functions

Course Outcome-4: To understand the concept of differentiability of a function, importance of mean value theorems and apply them to expand the given functions in a given interval.

Course Outcome-5: To be able to recognise the functions which are Riemann integrable and apply the fundamental theorem of integral calculus to evaluate real definite integrals.

Name of the Course: Ring Theory and Vector Calculus

Course Outcome-1: To be able to understand and differentiate between the algebraic structures like rings, integral domains, fields and their basic properties.

Course Outcome-2: To understand the concept of Ring homomorphism, isomorphism and fundamental theorem of homomorphism.

Course Outcome-3: To understand and use vector differentiation operators on vector valued functions.

Course Outcome-4: To compute line, surface and volume integrals of vector valued functions.

Course Outcomes-5: able to apply Gauss, Stokes and Green's theorems to compute vector integrals.

Name of the Course: Linear Algebra

Course Outcome-1: To understand the concept of vector space, subspaces linear span, linear dependence and independence of vectors

Course Outcome-2: Able to find basis and dimension of a vector space and various subspaces.

Course Outcome-3: Able to understand the concept of linear transformations, their properties and appreciate the use of rank nullity theorem.

Course Outcome-4: Able to use echelon form of a matrix in finding rank of a matrix, solution of system of equations, eigen values and eigen vectors of a matrix and also apply Cayley-Hamilton theorem.

Course Outcome-5: Able to understand the concept of inner product space, norm of a vector, orthonormal set of vectors and apply Gram-Schmidt orthogonalization process to obtain orthonormal basis of an inner product space.

Name of the Course: Laplace Transforms

Course Outcome-1: To find the Laplace transform of a function by definition and by use of table.

Course Outcome-2: Able to understand first and second shifting theorems.

Course Outcome-3: To understand Laplace transform of integrals, multiplication by t^n , Division by t

Course Outcome-4: Able to know the inverse Laplace transform, linearity, first and second shifting theorems.

Course Outcome-5: Able to find the inverse Laplace transform of derivatives, integrals, multiplication and division by powers of P .

Name of the Course: Integral Transforms

Course Outcome-1: To find the solutions of ordinary differential equations with constant and variable coefficients.

Course Outcome-2: To find the solution of simultaneous ordinary and partial differential equations.

Course Outcome-3: Able to know Abel's integral equations and applications of linear transformations to integral equations.

Course Outcome-4: Able to understand the Fourier sine and cosine transforms and apply their properties to solve integral equations.

Course Outcome-5: Able to apply convolution theorem for Fourier transform and use the relation between Fourier and Laplace transform.

Name of the Course: Advanced Numerical methods

Course Outcome-2: Able to apply various numerical differentiation formulae to find numerical derivative of a given tabulated function.

Course Outcome-3: Able to apply various numerical integration formulae to compute definite integrals.

Course Outcome-4: Able to apply direct and iterative methods to solve solutions of simultaneous linear system of equations.

Course Outcome-5: Able to use appropriate iterative methods to find numerical solution of initial value problems.

SCNR GOVT DEGREE COLLEGE, PRODDATUR

DEPARTMENT OF PHYSICS PHYSICS COURSE OUTCOME

S.NO	Course Name	CO Number	Course Outcome
1	MECHANICS & PROPERTIES OF MATTER	CO1	To learn about Scalar vector fields, Curl, Divergence, gradient concepts, Line, surface and volume integrals. They would also learn about Stokes, Gauss, theorems and their applications.
		CO2	To gain knowledge on motion of variable mass system, Collisions in two and three dimensions, Rutherford scattering cross section formula
		CO3	To understand the concepts of rotational kinematics of rigid body, Moment of inertia tensor, Euler equations, Precision of top, equinoxes and Gyroscope. Students would also learn about types of beams, load analysis in various configurations and mechanics of cantilever.
		CO4	To gain understanding on conservative forces, relation between conservative force and potential, equation of motion under central forces, Kepler's laws and motion of satellites and Global positioning system(GPS).
		CO5	They would learn about Galilean-Lorentz frames of references, Lorentz transformations, Michelson-Morley experiment, Postulates of special theory of relativity, length contraction, time dilation, addition of velocities, mass energy relation and 4 vector notation.
2	WAVES & OSCILLATIONS	CO1	To learn about physical properties of Simple Harmonic Motion (SHM), Torsional pendulum, Compound pendulum and their applications, Lissajous figures.
		CO2	To be able to solve the differential equations for forced harmonic oscillator and damped harmonic oscillator and compare the results with simple harmonic oscillator and logarithmic decrement, Relaxation time, Quality factor, velocity resonance and amplitude resonance.
		CO3	To learn about Fourier theorem and evaluation of Fourier coefficient, analysis of square wave,

			triangular wave, saw tooth wave and simple problems on Fourier theorem.
		CO4	To solve the wave equation for vibrating strings and study various parameters like modes, overtones, energy transport, transverse impedance etc.
		CO5	To learn about the basics of ultrasonic, production detection of ultrasonic, measurement of frequency and velocity of ultrasonic and the applications of ultrasonic.

3	Wave optics	CO1	To learn about the monochromatic and chromatic aberrations and their removal technique and Achromatic Doublet, Achromatism for two lenses in contact and separated by a distance.
		CO2	To understand the principle of superposition, coherence, Interference by division of wave front and amplitude, Fresnel's bi-prism, thin film interference, wedge shaped film interference, Newton's rings, Michelson's interferometer and their applications.
		CO3	Students would learn about Fresnel and Fraunhofer diffraction, Fraunhofer diffraction due to circular aperture, single slit, and double slit, N-slit, grating. They would also learn about Fresnel's half period zones, zone plate, phase reversal zone plates, comparison of zone plate & convex lens, interference & diffraction.
		CO4	To learn about methods of polarization, Brewster's law, Mal's law, Nicol prism, Quarter wave plate, half wave plate, Babinet's compensator and optical activity analysis by Laurent's half shade Polari meter.
		CO5	They learn about principles of LASER, Einstein coefficients, He-Ne laser, Ruby laser, applications of laser, Principles of optical fibre communication, classification of optical fibres, applications of optical fibres, principles of holography, and limitations of Gabor's hologram and applications of holography.

4	Thermodynamics And Radiation Physics	CO1	To learn about Deduction of Maxwell's distribution law of molecular speeds, Tooth wheel experiment, transport phenomena, mean free path, viscosity of gases, thermal conductivity and diffusion of gases.
---	--------------------------------------	-----	---

		CO2	To learn about Isothermal and adiabatic process – reversible and irreversible processes, Carnot's engine and its efficiency Kelvin's scale, entropy, disorder, T-S diagram and other applications of entropy.
		CO3	To understand thermodynamic potentials, Maxwell equations, Clausius-Clayperon's equation, Cp/Cv, Cp-Cv for perfect gas, J-K effect, J-K coefficient for perfect and Vander wall gases.
		CO4	They learn about Joule Kelvin effect – porous plug experiment, Expression for Joule Thomson cooling, liquefaction of helium, Adiabatic demagnetization, principle of refrigeration, air conditioning, effects of CFC on Ozone layer and applications of low temperature physics.
		CO5	To learn about Black Body- Ferry's black body, distribution of energy in the spectrum of black body, Wien's law, Rayleigh-jeans law, Planks theory of radiation, various types of pyrometers-experimental determination, determination of solar constant and Temperature of Sun.

5	Electricity, Magnetism & Electronics	CO1	To understand the concepts of electric field and eclectic potential due to point charge, solid sphere, cylinder. These concepts will enhance the student towards the problems come across in the real life.
		CO2	To learn about the concept of capacitance. Various types of capacitors. How can we store energy in the electric capacitor and the applications of capacitors in various applications
		CO3	To learn about the concepts of Hall effect, using this we can find the charge particles in the given material. Also to learn about the particle accelerators like cyclotron, synchrotron and cyclo synchrotron and their working principle
		CO4	To be able to learn about the concepts of Biot savart's law, Faraday's law and it's applications. Students are also able to learn the network theorems like Thevenins theorem – Norton's theorem for circuit analysis.

		CO5	To understand the basics of the electronics, Digital electronics and number systems, binary conversion of the number system and their applications in daily life
--	--	-----	--

6	Modern Physics	CO1	To be learn about the concepts of atomic models and their drawbacks. Students would also learn about Stern & Gerlach experiment Vector atom model, this model gives the existence of spin of an electron. Study of fine spectra and Zeeman effect and its experimental verification. They learn also about Raman effect and its applications.
		CO2	To learn about the concept of Matter waves and its properties and also about Heisenberg's uncertainty principle for position and momentum, energy and time and its experimental verification.
		CO3	To understand the Basic postulates of quantum mechanics, physical interpretation of wave function and Eigen functions and Eigen values.
		CO4	To be able to learn Basic ideas of nucleus – Size, mass, charge density, binding energy, angular momentum and parity. To understand the Radioactive decay, Geiger-Nuttall law, positron emission, electron capture and neutrino hypothesis.
		CO5	To understand the crystal structure of solids, unit cell, Miller indices, and types of lattices. They learn also about Superconductivity and types of superconductors and its applications.

7	RENEWABLE ENERGY	CO1	To understand the energy, power, forms of energies, conservation energies and identify the Role of energy in socio economic development and social transformations. They also learn about
---	------------------	-----	---

			Environmental degradation due to energy production and utilization, air and water pollution, depletion of ozone layer and global warming
		CO2	To understand the impact of exponential raise in energy usage on global economy. They also learn about Energy resources available in India, Urban and Rural energy consumption and need for use of new renewable energy sources.
		CO3	To understand solar energy, solar water heating system, solar cell, solar cooker, solar types and Applications of solar PV systems. They also learn about principle of wind energy conversion and advantages and disadvantages of wind mills and Applications of wind energy.
		CO4	To learn about the principle of ocean thermal energy conversion and wave energy technologies. They also understand the Hydrogen productions methods, Electrolysis of water and problem of hydrogen transport and distribution and uses of Hydrogen use as a fuel.
		CO5	To understand the conversion of Biomass into fuels, properties of Biomass, Biogas plants and characteristics of biogas. They also learn about energy through fermentation- parolysis, gasification and combustion.

8	Solar Thermal and Photovoltaic Aspects	CO1	To learn the Basic structure of Sun, Solar constant, basics of solar radiation, solar intensity measurement and Thermoelectric Pyranometer. They also understand the reflection, absorption and transmission of solar radiation through single and multi powers and Anti-reflecting coating
		CO2	To learn about the flat-plate collector, liquid heating type FPC, temperature distribution in FCP, evacuated tabular collectors, tracking systems, parabolic through concentrators, concentrators with point focus
		CO3	To understand the solar cell- type of interfaces, homo, hetero and schottky interfaces, Photovoltaic effect. They also learn about production of single crystal

			silicon, multi-junction solar cell, Basic concept of dye sensitized solar cell.
		CO4	To understand the solar cell module assembly-steps involve in the fabrication of solar module I-V characteristics, solar PV systems and its components.
		CO5	To understand the solar hot water system, types of SHWS, passive space heating and cooling concepts, solar thermal power generation. They also learn about SPV systems, hybrid grid connected systems, operational and maintenances, PV market analysis and economics of SPV Systems.

9	Wind, Hydro and Ocean energies	CO1	To understand the wind generation, meteorology of wind, world distribution of wind , wind energy conversion principles, types and classification of SWCS and also learn about wind measurements, biological anemometers and wind measurement with balloons.
		CO2	To understand the wind energy conversion system, aerodynamic design principles, maximum power coefficient and also learn about design of wind turbine, wind turbine design consideration, theoretical simulation of wind turbine characteristics.
		CO3	To understand the wind energy applications, performance analysis, design concept and testing: principle of wind energy generation. Economics of wind energy utilization in India
		CO4	To understand the small hydropower systems: over view of micro, mini and small hydro systems, hydrology: speed and voltage regulation: investment issues load management and traffic collection in India.
		CO5	To learn about the technology process, working principle of ocean thermal, tidal and wave energy systems. Advantages and dis-advantages, applications of OTEC.They also learn about origin and nature of tidal energy, merits and limitations, tidal energy technology, basic modes of operation of tidal system, wave energy conversion devices and application of wave energy.

10	Energy storage devices	CO1	To learn about need of energy storage , different modes of energy storages, fossil fuels and synthetic fuels. And Hydrogen for energy storage.
		CO2	To learn about primary and secondary batteries, led acid batteries, Nickel cadmium batteries, advanced batteries. Role of carbon nano-tubes in electrodes
		CO3	To understand the superconducting magnet energy storage systems and principle, working, structure, performance and applications of EDLC.
		CO4	To learn about the Fuel cell, difference between batteries and fuel cells, principle and working of fuel cell, advantages and disadvantages of Fuel cell.
		CO5	To understand the types of Fuel cells, problems with Fuel cell and applications of Fuel cell.

SCNR GDC PRODDATUR CHEMISTRY OUTCOMES

Course		CHEMISTRY Outcomes
ORGANIC & Inorganic chemistry	CO1	To Describe the trends in the physical and chemical properties of group 13 to group 17 elements. Know the Chemistry of some important compounds of Boron, Carbon, Silicone etc.
	CO2	To Identify and judge the structure, type of reaction, mechanism and chemical behavior of an organic compound during its transformation from reactants to products.
	CO3	To identify the reason for the aromaticity of various organic compounds that are used in the manufacturing of many products.
	CO4	To understand the importance of Structural theory in the organic chemistry which provides a strong basic knowledge for the students that helps in their further studies.
Physical & General Chemistry	CO1	To Understand the formation of bonds and interactions between the atoms, molecules, ions crystals and other stable substances that are used in attaining the best knowledge about future projects like quantum mechanics. Rationalize the existence of compounds and properties, structures and uses of various molecules.
	CO2	To understand the spatial arrangement of atoms that determine the structure of a compound which is fundamental study all the concepts of organic chemistry with the help of Stereochemistry
	CO3	To gain the knowledge about various synthetic techniques and synthesized products that helps a lot while working in manufacturing companies. Learn about various techniques for the conversion of different states of a substance (Liquefaction of gases, condensation, distillation etc.,) that are used in daily life
	CO4	To identify a type of reaction involving in the formation of a product. The practical knowledge is very essential for the identification of various ions and elements.

Organic & Inorganic Chemistry	C01	To understand the ways in which mono, di and unsaturated carboxylic acids are easily prepared by at industrial level. knowing about the active methylene compounds Studying about oxidizing and reducing Reagents, reactions and their mechanisms are very useful for the establishment of small industries and also for their self employment
	C02	To study d block elements which is useful in determination of colored complex formation in
	C03	To Various theories studied by the students involved in bonding in metals is very useful in
	C04	To gain the knowledge of conductors, insulators and semi conductors will help the students in
Spectroscopy & General Chemistry	C01	To be able to generate an Electric Current in an Electro Chemical Cell. This is the basis of all
	C02	To gain command on Dilute Solutions, Elevation of B.P. & depression of Freezing point, osmotic
	C03	To gain command on Phase rule, components and degrees of freedom, eutectic point, Pb-Ag
	C04	To know about Spectroscopy, electromagnetic spectrum, Electronic, IR spectroscopies, selection
Inorganic & Organic & Physical Chemistry	C01	To know how the Coordination compounds play many roles in the animals and plants. They are
	C02	To identify molecular geometries associated with various d-orbital splitting patterns, predict
	C03	To know about the stability constant (formation constant, binding constant) which is an
	C04	To have knowledge on isomerization and racemization reactions, to the general field of
Inorganic & Organic & Physical Chemistry	C01	To gain knowledge of the laws of physical chemistry such as chemical equilibrium, law of
	C02	To understand chemical kinetics which deals with the measurement of rates of reactions
	C03	To understand the laws of photochemistry and to know about a number of applications of
	C04	To gain knowledge on carbohydrates which constitutes one of the most important group of
Environmental Chemistry	C01	To analyze the sample materials by using spectrophotometry in research and
	C02	To determine the functional groups in organic molecules by using I.R spectroscopy. N.M.R
	C03	To learn about the renewable source which are used in daily life. The polymer chemistry known
	C04	To identify and analyse the adulterants in food materials. Learning about Qualitative analysis.
Advanced Organic Chemistry	C01	To be able to recognize different polymeric materials commonly seen in our environment

	C02	To explain the general reaction course and reaction mechanism of free radical, ionic and
	C03	To know the method of calculating the degree of polymerization and molecular weight of
	C04	To determine glass transition temperature and various factors effecting it. Also the free volume
Advanced Spectroscopy	C01	To acquire fundamental knowledge of spectroscopy and chromatographic techniques.
	C02	To understand the instrumentation and application of spectroscopy through U.V, I.R,
	C03	To acquire the knowledge of handling sophisticated instruments like
	C04	To lern about atomic absorbtion, emmmision and fluroscence spectroscopies, electro analytical
Pharmaceutical & Industrial chemistry	C01	To gain knowledge about various forms, formulation and therapeutic uses of drugs. Can
	C02	To learn about the structures, preparation methods and analysis of various basic drugs
	C03	To identify various elements or substituents present in the food material that are often
	C04	To know about the major diagnostic methods which can be useful in creating awareness among

SCNR. Govt. Degree College PRODDATUR

Program Outcomes of COMPUTER SCIENCE

- An ability to apply knowledge of computing and mathematics appropriate to the discipline.
- An ability to identify, formulate, and develop solutions to computational challenges.
- An ability to design, implement, and evaluate a computational system to meet desired needs within realistic constraints.
- An ability to function effectively on teams to accomplish shared computing design, evaluation, or implementation goals.
- An understanding of professional, ethical, legal, security, and social issues and responsibilities for the computing profession.
- An ability to communicate and engage effectively with diverse stakeholders.
- An ability to analyze impacts of computing on individuals, organizations, and society.
- Recognition of the need for and ability to engage in continuing professional development.
- An ability to use appropriate techniques, skills, and tools necessary for computing practice.
- An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computational systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.
- An ability to apply design and development principles in the construction of software systems of varying complexity.

SCNR GOVERNMENT DEGREE COLLEGE, PRODDATUR
Course Outcomes: B.Sc. Botany

CO1 - Paper-I: Microbial Algae and Fungi

On completion of the course, students are able to:

1. Understand the diversity among Algae.
2. Know the systematic, morphology and structure, of Algae.
Understand the life cycle pattern of Algae.
3. Understand the useful and harmful activities of Algae.
4. Understand the Biodiversity of Fungi
5. Know the Economic Importance of Fungi

CO2 - Paper-II: Diversity Archegoneats, Gymnosperms & Plant Anatomy:

On completion of the course, students are able to:

1. Understand the morphological diversity of Bryophytes and Pteridophytes and Gymnosperms.
2. Understand the economic importance of the Bryophytes and Pteridophytes and Gymnosperms.
3. Know the evolution of Bryophytes and Pteridophytes and Gymnosperms.
4. Understand the habit of the angiosperm plant body.
5. Know the vegetative characteristics of the plant.

CO3 - Paper – III : Plant Taxonomy and Embryology
--

1. Fundamental components of taxonomy (identification, nomenclature, classification)
2. Taxonomic resources: Herbarium- functions & important herbaria, Botanical gardens, Flora, Keys- single access and multi-access.
3. Botanical Nomenclature- Principles and rules of ICBN (ranks and names; principle of priority, binomial system; type method, author citation, valid-publication).
4. Types of classification- Artificial, Natural and Phylogenetic.

CO4 - Paper – IV : Plant Physiology and Metabolism

On completion of the course , students are able to:

- 1) Learn and understand about mineral nutrition in plants.
- 2) Understand the growth and developmental processes in plants.
- 3) Know about Photosynthesis and Respiration in plants.
- 4) Understand the process of translocation of solutes in plants
- 5) Know the nitrogen metabolism and its importance.

CO5 - Paper – V : Cell Biology, Genetics and Plant Breeding

1. Cell, the unit of life- Cell theory, Prokaryotic and eukaryotic cells; Eukaryotic cell components.
2. Ultra structure and functions of cell wall and cell membranes.
3. Chromosomes: morphology, organization of DNA in a chromosome (nucleosome model), Euchromatin and heterochromatin.
4. DNA as the genetic material: Griffith's and Avery's transformation experiment, Hershey – Chase bacteriophage experiment.
5. DNA structure (Watson & Crick model) and replication of DNA (semi-conservative)

CO6 - Paper – VI : PLANT ECOLOGY & PHYTOGEOGRAPHY

1. Ecology: definition, branches and significance of ecology.
2. Climatic Factors: Light, Temperature, precipitation.
3. Edaphic Factor: Origin, formation, composition and soil profile.
4. Biotic Factor: Interactions between plants and animals.
5. Principles of Phyto geography, Distribution (wides, endemic, discontinuous species)

CO7 - PAPER – VII – ORGANIC FARMING & SUSTAINABLE AGRICULTURE

1. Introduction: Farming, organic farming, concept and development of organic farming.
2. Principles of organic farming, types of organic farming, biodynamic farming.
3. Benefits of organic farming, need for organic farming, conventional farming vs organic farming
4. Scope of organic farming; Andhra Pradesh, National and International status.
5. Agencies and institutions related to organic agriculture.

SCNRGOVERNMENT DEGREE COLLEGE::PRODDATUR

ZOOLOGY DEPARTMENT

Title of the paper	ANIMAL DIVERSITY OF INVERTBRATES
Credits	3 (Theory) + 2 (Practicals)
Total Hours	60+24

In this course the students

- CO1.** Know the General characters and classification of Invertebrate phyla and Hemichordata
- CO2.** Understand the type studies of Elphidium, Sycon, Fasciola hepatica, Leech, Prawn.
- CO3.** Explain canal system in Sponges, corals and coral reef formation, Polymorphism in Coelenterates.
- CO4.** Understand Vermiculture and vermi compost, Pearl formation in Pelecypoda, water vascular system in star fish.
- CO5.** Learn about various invertebrate larval forms.

Title of the paper	ANIMAL DIVERSITY -CHORDATES
Credits	3 (Theory) + 2 (Practicals)
Total Hours	60+24

This course enables the students to understand

- CO1.** Distinct features and classification of Chordates, Origin of Chordates.
- CO2.** General characters and classification of Protochordates, Cyclostomes, Fishes, Amphibia, Reptalia, Aves and Mammalia.
- CO3.** The structure and Life history of Herdmania (Retrogressive Metamorphosis).
- CO4.** Thetypes of scales in fishes, Migration of fishes, Flight adaptations in Birds, Bird Migration, Dentition in Mammals.
- CO5.** Geographical features and faunal distribution of Oriental, Australian and Ethiopian regions.

Title of the paper	CYTOLOGY, GENETICS AND EVOLUTION
Credits	3 (Theory) + 2 (Practicals)
Total Hours	60+24

This paper enables the students to understand

CO1. Prokaryotic and eukaryotic cells, virus, viroids, Mycoplasma, Electron microscopic structure of eukaryotic cell, Plasma Membrane

CO2. Structure and functions of Endoplasmic Reticulum, Golgi complex, Ribosomes, Lysosomes, Mitochondria, Nucleus, Chromosomes.

CO3. Mendel's work on transmission of traits, Principles of inheritance, Incomplete dominance and co-dominance, Lethal alleles, Epistasis, Pleiotropy

CO4. Sex Determination, Sex Linked inheritance, Linkage and crossing over, Extra chromosomal inheritance, Human Karyotyping.

CO5. Origin of life, Lamarckism, Darwinism, Neo-Darwinism, Hardy-Weinberg Equilibrium, Variations, isolating mechanisms, natural selection, Speciation (Allopatric and Sympatric), Macro evolutionary principles.

Title of the paper	EMBRYOLOGY,PHYSIOLOGY,ECOLOGY,ANIMAL BEHAVIOUR
Credits	3 (Theory) + 2 (Practicals)
Total Hours	60+24

This course enables the students to understand

CO1. Gametogenesis, Fertilization, Types of eggs, Development of Frog upto gastrulation, Foetal membranes and Placentation in Mammals.

CO2. The Physiology of Digestion, Respiration, Circulation, Excretion, Muscle contraction, Nerve impulse, Endocrine glands.

CO3. Meaning and Scope of Ecology, Biotic and Abiotic Factors, Pond Ecosystem, Food chain, Energy flow, Biogeochemical cycles, Ecological Succession, Community Interactions.

CO4. Animal behaviour definition and Types, Innate behaviour, Learned behaviour (Associate learning).

CO5. Learning and Memory, Biological clocks, Circadian rhythms.

Title of the paper	ANIMAL BIOTECHNOLOGY
Credits	3 (Theory) + 2 (Practicals)
Total Hours	60+24

This course enables the students to understand

CO1. Tools of Recombinant DNA technology

CO2. Techniques of Recombinant DNA technology

CO3 .Animal Cell Technology

CO4. Reproductive Technologies & Transgenic Animals

CO5. Different types of Fermentation, Downstream processing - Filtration, centrifugation, extraction, chromatography, spray drying and lyophilization.

Title of the paper	ANIMAL HUSBANDRY
Credits	3 (Theory) + 2 (Practicals)
Total Hours	60+24

This course enables the students to understand

CO1. Poultry farming, Management of chicks, growers and layers, Broilers.

CO2. Principles of feeding, Poultry diseases – viral, bacterial, fungal and parasitic

CO3. Selection, care and handling of hatching eggs

CO4. Classification of Indian Cattle breeds, exotic breeds and Indian buffalo breeds. Systems of inbreeding and crossbreeding, Housing of dairy animals, Cleaning and sanitation of dairy farm. Weaning of calf, Castration and dehorning, Deworming and Vaccination programme, Records to be maintained in a dairy farm.

CO5. Care and management of calf, heifer, milk animal, dry and pregnant animal, bulls and bullocks.

Title of the paper	IMMUNOLOGY
Credits	3 (Theory) + 2 (Practicals)
Total Hours	60+24

This course enables the students to understand

CO1 .Basic concepts in Immunology, Innate and adaptive immunity, Cells and organs of Immune system

CO2. Basic properties of antigens,B and T cell epitopes, haptens and adjuvants, Factors influencing immunogenicity.

CO3. Structure of antibody, Classes and functions of antibodies , Monoclonal antibodies.

CO4. Structure and functions of major histocompatibility complexes, Exogenes and

CLUSTER ELECTIVE: AQUACULTURE

Title of the paper	PRINCIPLES OF AQUACULTURE
Credits	3 (Theory) + 2 (Practicals)
Total Hours	60+24

Endogenes pathways of antigen presentation and processing.

CO5. Classification and brief description of various types of hyper sensitivities, Vaccines, Types of vaccines.

This paper enables the students to understand

CO1. Definition, Significance and History of Aquaculture , Present status of Aquaculture – Global and National scenario, Major cultivable species for aquaculture: freshwater, brackish water and marine.

CO2. Types of Aquaculture: Culture systems: Culture practices

CO3. Criteria for the selection of site for fresh water and brackish water pond farms, Design and construction of fish and shrimp farms, Natural seed resources and Procurement of seed for stocking, Nutritional requirements of cultivable fish and shellfish.

CO4. Management of carp culture ponds, Culture of giant freshwater prawn, *Macrobrachium rosenbergii*.

CO5. Culture of shrimp, Seaweeds, Ornamental fishes.

Title of the paper	AQUACULTURE MANAGEMENT
Credits	3 (Theory) + 2 (Practicals)
Total Hours	60+24

This paper enables the students to understand

CO1. Bundh Breeding and Induced breeding of carp by Hypophysation; and use of synthetic hormones, Types of fish hatcheries; Hatchery management of Indian major carps

CO2. Water quality and soil characteristics suitable for fish and shrimp culture

CO3. Live Foods and their role in shrimp larval nutrition, Supplementary feeds

CO4. Principles of disease diagnosis and health management

CO5. Principles of aquaculture economics, Fisheries Training and Education in India.

Title of the paper	POST HARVEST TECHNOLOGY
Credits	3 (Theory) + 2 (Practicals)
Total Hours	60+24

This paper enables the students to understand

CO1. Handling of fresh fish, storage and transport of fresh fish, post mortem changes, spoilage in marine fish and freshwater fish, Principles of preservation.

CO2. Methods of fish Preservation

CO3. Various Fish Products and by-products, Seaweed Products and their uses.

CO4. Sanitation in processing plants - Environmental hygiene and Personal hygiene in processing plants.

CO5. Seafood Quality Assurance and Systems

SCNR GOVERNMENT DEGREE COLLEGE, PRODDATUR

DEPARTMENT OF ENGLISH

Six Modules of English Language

- Module1: Listening
- Module2: Speaking
- Module3: Grammar
- Module4: English for Specific Purposes.
- Module5: Reading
- Module6: Writing

Objectives of the Department

- To enrich the language proficiency of the students with emphasis on improving their LSRW skills.
- To develop the communicative competences of the students theoretically and practically.
- To improve the interactive skills of the students both in formal and informal situations.
- To enhance the career-oriented skills and the employability of the students.

Course Out Comes

- To develop English proficiency level of the undergraduate students apart from helping them to become autonomous in learning the language.
- Students will be able to read and comprehend a text on their own.
- Use simple and correct English.
- Improve vocabulary
- Develop their grammatical ability
- Use different forms and formats of written correspondence
- Be able to speak English meaningfully.

Module Number	Title of the Module	Skills aimed at	Activities for Practice
1	Listening	<ul style="list-style-type: none"> • Listening for general content. • Listening to fill up information gaps. • Intensive listening. 	Comprehension questions. Paraphrasing as a part of Active listening.
2	Speaking	<ul style="list-style-type: none"> • Oral Practice • Introducing Oneself/Others • Seeking Information • Describing objects/situations/people • Role play • Expressing agreement/disagreement 	Role Play Just A Minute Guessing Words
3	Grammar	<ul style="list-style-type: none"> • Basic Components of Grammar • Oral Practice • Correction of Sentences • Grammar for Composition 	Quiz Objective Questions Classification of Words
4	English for Specific Purposes	<ul style="list-style-type: none"> • Professional Skills 	Resume Preparation Group Discussions Mock Interviews E- Correspondence Cover Letters
5	Reading	<ul style="list-style-type: none"> • Skimming and Scanning Skills of Comprehension • Poetry Reading • Intensive and Extensive Reading • Identifying Topic Sentence • Understanding Connectives 	News Paper Reading Reading Comprehensions
6	Writing	<ul style="list-style-type: none"> • Writing a Sentences • Paragraph Writing • Formal and Informal Letter • Note Making and Note Taking • Use of appropriate Vocabulary • E-Correspondence 	Story Writing Report Writing Narrative Writing Letter Writing Dialogue Writing Guided Composition