



GOVERNMENT DEGREE COLLEGE, CHEBROLE

Accredited by NAAC with 'B' Grade

Affiliated to Acharya Nagarjuna University,

Guntur District, Andhra Pradesh, PIN 522 212

Phone No: 08644-254221, 254322 Email: jkc.chebrole@gmail.com

DEPARTMENT OF MATHEMATICS

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21

PROGRAMME: THREE-YEAR B.Sc, MATHEMATICS

PROGRAMME STRUCTURE

First Semester Course I: Differential Equations	Second Semester Course II: Three Dimensional Analytical Solid Geometry
Third Semester Course III: Abstract Algebra.	Fourth Semester Course IV: Real Analysis. Course V: Linear Algebra
Fifth Semester Course VI: Numerical Methods Course V: Special Functions	Sixth Semester Semester Internship Programme.

PROGRAMME OUTCOMES

PO1	To develop problem solving ability in students.
PO2	Students will acquire basic understanding of the concepts and problem solving skills along with domain knowledge of different methods in Geometry.
PO3	Students will become employable; they will be eligible for career opportunities in Industry, or will be able to opt for entrepreneurship using abstract Algebraic skills.
PO4	Students will possess basic subject knowledge required for higher studies, professional and applied courses like Applied mathematics, Operation research, Mathematical Analysis etc.
PO5	Students will be aware of and able to develop solution oriented approach towards Various Theoretical issues and problem solving abilities.

PROGRAMME SPECIFIC OUTCOMES

PSO1	A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology in differential equations.
PSO2	A student should get adequate exposure to global and local concerns that explore them many aspects of Solid Geometry.
PSO3	Student is equipped with mathematical modeling ability, problem solving skills, creative talent and power of communication necessary for various kinds of employment using Algebraic structures.
PSO4	Student should be able to apply their skills and knowledge of Real Number systems that analyze information presented into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion.
PSO5	Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study of Linear Algebra.

COURSE OUTCOMES

Course: Semester I - Differential Equations	
Students after successful completion of the course will be able to	
CO1	Solve linear differential equations.
CO2	Convert non exact homogeneous equations to exact differential equations by using Integrating factors.
CO3	Know the methods of finding solutions of differential equations of the first order but not of the first degree.
CO4	Solve higher order linear differential equations, both homogeneous and non-homogeneous with constant coefficients.
CO5	Understand the concept and apply appropriate methods for solving differential equations.

Course: Semester II - Three Dimensional Analytical Solid Geometry	
Students after successful completion of the course will be able to	
CO1	Get the knowledge of planes.
CO2	Learn basic idea of lines, spheres and cones.
CO3	To understand the properties of planes, lines, spheres and cones.
CO4	To express the problems geometrically and then to get the solution.

Course: Semester III - Abstract Algebra	
Students after successful completion of the course will be able to	
CO1	To acquire the basic knowledge and structure of groups, subgroups and cyclic groups
CO2	To get the significance of the notation of a normal subgroup.
CO3	To get the behavior of permutations and operations on them.
CO4	To study the homomorphisms and isomorphisms with applications.
CO5	To understand the ring theory concepts with the help of knowledge in group theory and to prove the theorems.
CO6	To understand the applications of ring theory in various fields.

Course: Semester IV Paper 4 - Real Analysis	
Students after successful completion of the course will be able to	
CO1	To get clear idea about the real numbers and real valued functions.
CO2	To obtain the skills of analyzing the concepts and applying appropriate methods for testing convergence of a sequence/series.
CO3	To test the continuity and differentiability and Riemann integration of a function.
CO4	To know the geometrical interpretation of mean value theorems.

Course: Semester IV Paper 5 - Linear Algebra	
Students after successful completion of the course will be able to	
CO1	To understand the concepts of vector spaces, subspaces, bases, dimension and their properties.
CO2	To understand the concepts of linear transformations and their properties.
CO3	To apply Cayley-Hamilton theorem to problems for finding the inverse of a matrix and higher powers of matrices without using routine methods
CO4	To learn the properties of inner product spaces and determine orthogonality in inner product spaces.

Course: Semester V (Paper 6A) - Numerical Methods	
Students after successful completion of the course will be able to	
CO1	To understand the subject of various numerical methods that are used to obtain approximate solutions.
CO2	To understand various finite difference concepts and interpolation methods.
CO3	To work out numerical differentiation and integration whenever routine methods are not applicable.
CO4	To find numerical solutions of ordinary differential equations by using various numerical methods.
CO5	To analyze and evaluate the accuracy of numerical methods.

Course: Semester V (Paper 7A) - Special Functions	
Students after successful completion of the course will be able to	
CO1	To understand the Beta and Gamma functions, their properties and relation between these two functions, understand the orthogonal properties of Chebyshev polynomials and recurrence relations.
CO2	To find power series solutions of ordinary differential equations.
CO3	To solve Hermite equation and write the Hermite polynomial of order (degree) n , also find the generating function for Hermite polynomials, study the orthogonal properties of Hermite polynomials and recurrence relations.
CO4	To solve Legendre equation and write the Legendre equation of first kind, also find the generating function for Legendre polynomials, understand the orthogonal properties of Legendre polynomials.
CO5	To solve Bessel equation and write the Bessel equation of first kind of order n , also find the generating function for Bessel function understand the orthogonal properties of Bessel function.

Course: Semester VI - Semester Internship Programme
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DEPARTMENT OF PHYSICS

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21

PROGRAMME: THREE-YEAR B.Sc., PHYSICS

PROGRAMME STRUCTURE

First Semester Course I: Mechanics, Waves and Oscillations Practical Course I (Lab-1)	Second Semester Course II: Wave Optics Practical Course II (Lab-2)
Third Semester Course III: Heat and Thermodynamics Practical Course III (Lab-3)	Fourth Semester Course IV: Electricity, Magnetism and Electronics Course V: Modern Physics Practical Courses IV and V: (Lab-4) and (Lab-5)
Fifth Semester Skill Enhancement Courses (SECs) TO CHOOSE ONE PAIR FROM THREE ALTERNATE PAIRS OF SECs	
Course 6A – Optical Instruments and Optometry Practical Course 6A (Lab-6A)	
Course 7A – Optical Imaging and Photography Practical Course 7A (Lab-7A)	
Course 6B – Low Temperature Physics and Refrigeration Practical Course 6B (Lab-6B)	
Course 7B – Solar Energy and Applications Practical Course 7B (Lab-7B)	
Course 6C – Applications of Electricity and Electronics Practical Course 6C (Lab-6C)	
Course 7C – Electronic Instrumentation Practical Course 7C (Lab-7C)	

PROGRAMME OUTCOMES:

PO-1	Scientific temper would be developed among science students studying Physics in particular and studying science in general.
PO-2	Students will acquire basic technical knowledge and Practical skills along with domain knowledge of different subjects in the science stream.
PO-3	Students will become employable; they will be eligible for career opportunities in Industry or will be able to opt for entrepreneurship.
PO-4	Students will be aware of and able to develop solution oriented approach towards various scientific issues in their day to day life.

PROGRAMME SPECIFIC OUTCOMES:

PSO-1	Understand various theoretical concepts related to physical and chemical properties of materials and the role of mathematics in dealing with them in qualitative and quantitative ways
PSO-2	Analyse the concepts of Physical and Mathematics and apply them in various situation and also in solving physics problems
PSO-3	Acquires the ability to interlink the skills and knowledge in Mathematics and Physics to develop an aptitude to address the problems in other branches of science
PSO-4	Acquires the skill needed to handle instruments and adopt lab procedures to study physical and chemical properties of materials
PSO-5	Motivate students towards higher education leading to research

I YEAR - B.Sc., PHYSICS - I SEMESTER - PAPER 1 - Mechanics, Waves and Oscillations**COURSE OUTCOMES:**

On successful completion of this course, the students will be able to understand	
CO-1	Understand Newton's laws of motion and motion of variable mass system and its application to rocket motion and the concepts of impact parameter, scattering cross section.
CO-2	Apply the rotational kinematic relations, the principle and working of gyroscope and its applications and the precessional motion of a freely rotating symmetric top.
CO-3	Comprehend the general characteristics of central forces and the application of Kepler's laws to describe the motion of planets and satellite in circular orbit through the study of law of Gravitation.
CO-4	Understand postulates of Special theory of relativity and its consequences such as length contraction, time dilation, relativistic mass and mass-energy equivalence.
CO-5	Examine phenomena of simple harmonic motion and the distinction between un-damped, damped and forced oscillations and the concepts of resonance and quality factor with reference to damped harmonic oscillator.
CO-6	Appreciate the formulation of the problem of coupled oscillations and solve them to obtain normal modes of oscillation and their frequencies in simple mechanical systems.
CO-7	Figure out the formation of harmonics and overtones in a stretched string and acquire the knowledge on Ultrasonic waves, their production and detection and their applications in different fields

I YEAR - B.SC., PHYSICS - I SEMESTER - PRACTICAL PAPER 1 – Mechanics, Waves and Oscillations (LAB-1)**COURSE OUTCOMES:**

On successful completion of this course, the students will be able to understand	
CO-1	Perform experiments on Properties of matter such as the determination of moduli of elasticity viz., Young's modulus, Rigidity modulus of certain materials; Surface tension of water , Coefficient of viscosity of a liquid , Moment of inertia of some regular bodies by different methods and compare the experimental values with the standard values.
CO-2	Know how to determine the acceleration due to gravity at a place using Compound pendulum and Simple pendulum.
CO-3	Notice the difference between flat resonance and sharp resonance in case of volume resonator and sonometer experiments respectively.
CO-4	Verify the laws of transverse vibrations in a stretched string using sonometer and comment on the relation between frequency, length and tension of a stretched string under vibration
CO-5	Demonstrate the formation of stationary waves on a string in Melde's string experiment.
CO-6	Observe the motion of coupled oscillators and normal modes

I YEAR - B.Sc., PHYSICS - II SEMESTER - PAPER 2 - Wave Optics

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Understand the phenomenon of interference of light and its formation in (i) Lloyd's single mirror due to division of wave front and (ii) Thin films, Newton's rings and Michelson interferometer due to division of amplitude
CO-2	Distinguish between Fresnel's diffraction and Fraunhofer diffraction and observe the diffraction patterns in the case of single slit and the diffraction grating
CO-3	Describe the construction and working of zone plate and make the comparison of zone plate with convex lens
CO-4	Explain the various methods of production of plane, circularly and polarized light and their detection and the concept of optical activity..
CO-5	Comprehend the basic principle of laser, the working of He-Ne laser and Ruby lasers and their applications in different fields.
CO-6	Explain about the different aberrations in lenses and discuss the methods of minimizing them
CO-7	Understand the basic principles of fibreoptic communication and explore the field of Holography and Nonlinear optics and their applications.

I YEAR - B.SC., PHYSICS - II SEMESTER - PRACTICAL PAPER 2: Wave Optics (LAB-2)

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Gain hands-on experience of using various optical instruments like spectrometer, polarimeter and making finer measurements of wavelength of light using Newton Rings experiment, diffraction grating etc.
CO-2	Understand the principle of working of polarimeter and the measurement of specific rotatory power of sugar solution
CO-3	Know the techniques involved in measuring the resolving power of telescope and dispersive power of the material of the prism.
CO-4	Be familiar with the determination of refractive index of liquid by Boy's method and the determination of thickness of a thin wire by wedge method

II YEAR - B.Sc., PHYSICS - III SEMESTER - PAPER 3 – Heat and Thermodynamics

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Understand the basic aspects of kinetic theory of gases, Maxwell-Boltzman distribution law, equipartition of energies, mean free path of molecular collisions and the transport phenomenon in ideal gases
CO-2	Gain knowledge on the basic concepts of thermodynamics, the first and the second law of thermodynamics, the basic principles of refrigeration, the concept of entropy, the thermodynamic potentials and their physical interpretations.
CO-3	Understand the working of Carnot's ideal heat engine, Carnot cycle and its efficiency
CO-4	Develop critical understanding of concept of Thermodynamic potentials, the formulation of Maxwell's equations and its applications.
CO-5	Differentiate between principles and methods to produce low temperature and liquefy air and also understand the practical applications of substances at low temperatures.
CO-6	Examine the nature of black body radiations and the basic theories.

**II YEAR - B.SC., PHYSICS - III SEMESTER - PRACTICAL PAPER 3 -
Heat and Thermodynamics (LAB-3)**

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Perform some basic experiments in thermal Physics, viz., determinations of Stefan's constant, coefficient of thermal conductivity, variation of thermo-emf of a thermocouple with temperature difference at its two junctions, calibration of a thermocouple and Specific heat of a liquid.

**II YEAR - B.Sc., PHYSICS - IV SEMESTER - PAPER 4 –
Electricity, Magnetism and Electronics**

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Understand the Gauss law and its application to obtain electric field in different cases and formulate the relationship between electric displacement vector, electric polarization, Susceptibility, Permittivity and Dielectric constant.
CO-2	Distinguish between the magnetic effect of electric current and electromagnetic induction and apply the related laws in appropriate circumstances.
CO-3	Understand Biot and Savart's law and Ampere's circuital law to describe and explain the generation of magnetic fields by electrical currents.
CO-4	Develop an understanding on the unification of electric and magnetic fields and Maxwell's equations governing electromagnetic waves.
CO-5	Phenomenon of resonance in LCR AC-circuits, sharpness of resonance, Q- factor, Power factor and the comparative study of series and parallel resonant circuits.
CO-6	Describe the operation of p-n junction diodes, zener diodes, light emitting diodes and transistors
CO-7	Understand the operation of basic logic gates and universal gates and their truth tables.

**II YEAR - B.SC., PHYSICS - IV SEMESTER - PRACTICAL PAPER 4 -
Electricity, Magnetism and Electronics (LAB-4)**

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Measure the current sensitivity and figure of merit of a moving coil galvanometer.
CO-2	Observe the resonance condition in LCR series and parallel circuit
CO-3	Learn how a sonometer can be used to determine the frequency of AC-supply.
CO-4	Observe the variation of magnetic field along the axis of a circular coil carrying current using Stewart and Gee's apparatus.
CO-5	Understand the operation of PN junction diode, Zener diode and a transistor and their V-I characteristics.
CO-6	Construct the basic logic gates, half adder and full adder and verify their truth tables. Further, the student will understand how NAND and NOR gates can be used as universal building blocks.

II YEAR - B.Sc., PHYSICS - IV SEMESTER - PAPER 5 – Modern Physics
COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Develop an understanding on the concepts of Atomic and Modern Physics, basic elementary quantum mechanics and nuclear physics.
CO-2	Develop critical understanding of concept of Matter waves and Uncertainty principle.
CO-3	Get familiarized with the principles of quantum mechanics and the formulation of Schrodinger wave equation and its applications.
CO-4	Examine the basic properties of nuclei, characteristics of Nuclear forces, salient features of Nuclear models and different nuclear radiation detectors.
CO-5	Classify Elementary particles based on their mass, charge, spin, half life and interaction.
CO-6	Get familiarized with the nano materials, their unique properties and applications.
CO-7	Increase the awareness and appreciation of superconductors and their practical applications.

**II YEAR - B.SC., PHYSICS - IVSEMESTER - PRACTICAL PAPER 5 –
Modern Physics (LAB-5)**

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Measure charge of an electron and e/m value of an electron by Thomson method.
CO-2	Understand how the Planck's constant can be determined using Photocell and LEDs.
CO-3	Study the absorption of α -rays and β -rays, Range of β -particles and the characteristics of GM counter
CO-4	Determine the Energy gap of a semiconductor using thermistor and junction diode.

SKILL ENHANCEMENT COURSES (SECs)

for Semester V

Learning outcomes in respect of Skill Enhancement Courses (SECs)

III YEAR - B.SC., PHYSICS – V SEMESTER - PAPER 6A – Optical Instruments and Optometry

On successful completion of this course, the students will be able to	
LO-1	Understand the construction and working principles of various optical instruments used in daily life.
LO-2	Acquire a critical knowledge on the various defects of eye and their correcting methods with suitable lenses.
LO-3	Demonstrate skills of using biological microscope through hands on experience.
LO-4	Understand the various techniques used in optometry and computer based eye testing
LO-5	Comprehend the various applications of microscopes and telescopes.

III YEAR - B.SC., PHYSICS – V SEMESTER – PRACTICAL PAPER 6A – Optical Instruments and Optometry (Lab 6A)

On successful completion of this course, the students will be able to	
LO-1	List out, identify and handle various equipment like binoculars, telescopes and microscopes.
LO-2	Learn the procedures of operation of various optical instruments.
LO-3	Demonstrate skills on testing the power of lenses, improving the resolution of telescopes and microscopes.
LO-4	Acquire skills in observing and measuring the power, focal length and different refractive errors of eye.
LO-5	Perform some techniques related to testing the blood and other biological samples.
LO-6	Understand the technique of operation of Computer eye testing and evaluation.

III YEAR - B.SC., PHYSICS – V SEMESTER - PAPER 7A – Optical Imaging and Photography

On successful completion of this course, the students will be able to	
LO-1	Identify the different types of cameras and camera lenses according to different purposes.
LO-2	Identify and understand the focal length of the different types of lenses
LO-3	Acquire a critical knowledge on natural and artificial sources of light and their application in photography.
LO-4	Demonstrate skills of camera usage especially Digital Cameras.
LO-5	Understand the various Image development and editing techniques.
LO-6	Comprehend the concept of different types of common shooting techniques.

III YEAR - B.SC., PHYSICS – V SEMESTER – PRACTICAL PAPER 7A – Optical Imaging and Photography (Lab 7A)

On successful completion of this course, the students will be able to	
LO-1	List out, identify and understand various image formation techniques including Eye.
LO-2	Learn the procedures of using Analog and Digital cameras.
LO-3	Demonstrate the focusing techniques of Analog and Digital cameras.
LO-4	Acquire skills in the editing and development of photos and videos.
LO-5	Perform some experimental skills related to images, videos using the equipment available in the lab or in a local studio.

**III YEAR - B.SC., PHYSICS – V SEMESTER - PAPER 6B –
Low Temperature Physics & Refrigeration**

On successful completion of this course, the students will be able to	
LO-1	Identify various methods and techniques used to produce low temperatures in the Laboratory.
LO-2	Acquire a critical knowledge on refrigeration and air conditioning.
LO-3	Demonstrate skills of Refrigerators through hands on experience and learns about refrigeration components and their accessories.
LO-4	Understand the classification, properties of refrigerants and their effects on environment.
LO-5	Comprehend the applications of Low Temperature Physics and refrigeration.

**III YEAR - B.SC., PHYSICS – V SEMESTER – PRACTICAL PAPER 6B –
Low Temperature Physics & Refrigeration (Lab 6B)**

On successful completion of this course, the students will be able to	
LO-1	List out, identify and handle equipment used in refrigeration and low temperature lab.
LO-2	Learn the procedures of preparation of Freezing Mixtures.
LO-3	Demonstrate skills on developing various Freezing mixtures and materials and their applications in agriculture, medicine and day to day life.
LO-4	Acquire skills in observing and measuring various methodologies of very low temperatures
LO-5	Perform some techniques related to Refrigeration and Freezing in daily life.

**III YEAR - B.SC., PHYSICS – V SEMESTER - PAPER 7B –
Solar Energy and Applications**

On successful completion of this course, the students will be able to	
LO-1	Understand Sun structure, forms of energy coming from the Sun and its measurement.
LO-2	Acquire a critical knowledge on the working of thermal and photovoltaic collectors.
LO-3	Demonstrate skills related to callus culture through hands on experience
LO-4	Understand testing procedures and fault analysis of thermal collectors and PV modules.
LO-5	Comprehend applications of thermal collectors and PV modules.

**III YEAR - B.SC., PHYSICS – V SEMESTER – PRACTICAL PAPER 7B –
Solar Energy and Applications (Lab 7B)**

On successful completion of this course, the students will be able to	
LO-1	List out and identify various components of solar thermal collectors and systems, solar photovoltaic modules and systems.
LO-2	Learn the procedures for measurement of direct, global and diffuse solar radiation, I - V characteristics and efficiency analysis of solar cells and modules.
LO-3	Demonstrate skills acquired in evaluating the performance of solar cell / module in connecting them appropriately to get required power output.
LO-4	Acquire skills in identification and elimination of the damaged panels without affecting the output power in a module / array.
LO-5	Perform procedures and techniques related to general maintenance of solar thermal and photovoltaic modules.

**III YEAR - B.SC., PHYSICS – V SEMESTER - PAPER 6C –
Applications of Electricity & Electronics**

On successful completion of this course, the students will be able to	
LO-1	Identify various components present in Electricity& Electronics Laboratory.
LO-2	Acquire a critical knowledge of each component and its utility (like resistors, capacitors, inductors, power sources etc.).
LO-3	Demonstrate skills of constructing simple electronic circuits consisting of basic circuit elements.
LO-4	Understand the need & Functionality of various DC & AC Power sources.
LO-5	Comprehend the design, applications and practices of various electrical & Electronic devices and also their trouble shooting.

**III YEAR - B.SC., PHYSICS – V SEMESTER – PRACTICAL PAPER 6C –
Applications of Electricity & Electronics (Lab 6C)**

On successful completion of this course, the students will be able to	
LO-1	List out, identify and handle various equipment in Electrical & Electronics laboratory.
LO-2	Learn the procedures of designing simple electrical circuits.
LO-3	Demonstrate skills on the utility of different electrical components and devices.
LO-4	Acquire the skills regarding the operation, maintenance and troubleshooting of various Devices in the lab.
LO-5	Understand the different applications of Electromagnetic induction.

**III YEAR - B.SC., PHYSICS – V SEMESTER - PAPER 7C –
Electronic Instrumentation**

On successful completion of this course, the students will be able to	
LO-1	Identify various facilities required to set up a basic Instrumentation Laboratory.
LO-2	Acquire a critical knowledge of various Electrical Instruments used in the Laboratory.
LO-3	Demonstrate skills of using instruments like CRO, Function Generator, Multimeter etc. through hands on experience.
LO-4	Understand the Principle and operation of different display devices used in the display systems and different transducers
LO-5	Comprehend the applications of various biomedical instruments in daily life like B.P. meter, ECG, Pulse oximeter etc. and know the handling procedures with safety and security.

**III YEAR - B.SC., PHYSICS – V SEMESTER – PRACTICAL PAPER 7C –
Electronic Instrumentation (Lab 7C)**

On successful completion of this course, the students will be able to	
LO-1	List out, identify and handle various equipment in Instrumentation Laboratory or Electronic Laboratory.
LO-2	Learn the construction, operational principles of various instruments.
LO-3	Demonstrate skills on handling, Maintenance & trouble shooting of different instruments used in the Labs.
LO-4	Acquire skills in observing and measuring various electrical and electronic quantities.
LO-5	Perform some techniques related to Biomedical Instrumentation and measurement of Certain physiological parameters like body temperature, B.P. and sugar levels etc.



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DEPARTMENT OF CHEMISTRY

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21
PROGRAMME: THREE-YEAR B.Com, CHEMISTRY

PROGRAMME STRUCTURE

First Semester Course I: Inorganic & Physical Chemistry	Second Semester Course II: Organic & General Chemistry
Third Semester Course III: Organic Chemistry & Spectroscopy	Fourth Semester Course IV: Inorganic, Organic and Physical Chemistry Course V: Inorganic & Physical Chemistry
Fifth Semester Course V: Inorganic, Organic and Physical Chemistry Course VI: Inorganic, Organic & Physical Chemistry	Sixth Semester Course VII B: Environmental Chemistry

PROGRAMME	PROGRAM SPECIFIC OUTCOMES		
B.SC	M.P.C	PSO1	Ability to explain fundamental knowledge of Mathematics, Physics and Chemistry
		PSO2	Analyse the concepts of mathematics, physics and chemistry and understand the relation among them like physical chemistry, mathematical modelling of physics and chemistry problems. Skills needed to handle instruments and adopt lab procedures to study physical chemical properties of materials.
		PSO3	Mathematical, numerical techniques required to model them.
		PSO4	Ability to understand good laboratory practices and Safety
	B.Z.C	PSO1	Students gain knowledge and develop skill over animal sciences, understands the interactions among various living organisms
		PSO2	Students are able to study animals of different phyla, their distribution and their
		PSO3	students are able to understand internal structure of cell, functions of various cellular organelles.
		PSO4	Understands the complex evolutionary processes and behavioural pattern of various animals
		PSO5	Students are able to correlate the physiological and biochemical processes of animals
		PSO6	Understanding of ecological factors, environmental conservation processes and its importance, pollution control and biodiversity and protection of threatened species

Programme Outcomes

Completion of Programme, the students / graduates will equip the knowledge about:

PO1	Communication skills	Ability to express thoughts and ideas effectively in writing and orally. Communicate with others using appropriate media; confidently share ones views and express herself.
PO2	Critical thinking	Capability to apply analytic thought to a body of knowledge, analyse and evaluate evidence arguments, claims, beliefs on the basis of empirical evidence.
PO3	Problem solving	Ability to identify and solve problems by applying appropriate skills systematically.
PO4	Analytical reasoning	Ability to evaluate the reliability and relevance of evidence; identify logical flaws and holes in the arguments of others.
PO5	Research-related skills	Ability to recognize cause and effect relationships, define problems, formulate, hypothesis, test hypothesis, analyses and draw conclusions from data.
PO6	Scientific Reasoning	Ability to analyse interpret and draw conclusions from quantitative/qualitative data.
PO7	Reflective thinking	Critical sensibility to lived experiences ,with self-awareness and reflexivity of both self and society
PO9	The ability to acquire skills in self-directed learning may be the key link between Undergraduate education, postgraduate training, and continuing professional development.	
PO10	Ability to embrace moral/ethical values in conducting one's life, formulate a position /argument about an ethical issue from multiple perspectives, and use ethical practices in all work.; and adopting objective, unbiased and truthful actions in all aspects of work.	
PO11	Capability for mapping out the tasks of a team or an organization, and setting direction, formulating an inspiring vision, building a team who can help achieve the vision, motivating and inspiring team members to engage with that vision, and using management skills to guide people to the right destination, in a smooth and efficient way.	
PO12	Ability to acquire knowledge and skills, including learning how to learn, “that are necessary for participating in learning activities throughout life, through self-paced and self-directed learning aimed at personal development, meeting economic, social and cultural objectives, and adapting to changing trades	

SEMESTER – I

Course I (Inorganic & Physical Chemistry) 60 hrs. (4h/w)

Course outcomes:

At the end of the course, the student will be able to;

1. Understand the basic concepts of p-block elements
2. Explain the difference between solid, liquid and gases in terms of intermolecular interactions.
3. Apply the concepts of gas equations, Ph and electrolytes while studying other chemistry courses.

LABORATORY COURSE -I 30hrs (2 h / w)

Practical-I Analysis of SALT MIXTURE (At the end of Semester-I)

Qualitative inorganic analysis (Minimum of Six mixtures should be analysed) 50 M

Course outcomes

At the end of the course, the student will be able to;

1. Understand the basic concepts of qualitative analysis of inorganic mixture
2. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
3. Apply the concepts of common ion effect, solubility product and concepts related to qualitative analysis

SEMESTER – II

Course II – (Organic & General Chemistry) 60 hrs (4h/w)

Course outcomes

At the end of the course, the student will be able to;

1. Understand and explain the differential behavior of organic compounds based on fundamental concepts learnt.
2. Formulate the mechanism of organic reactions by recalling and correlating the fundamental properties of the reactants involved.
3. Learn and identify many organic reaction mechanisms including Free Radical Substitution, Electrophilic Addition and Electrophilic Aromatic Substitution.
4. Correlate and describe the stereochemical properties of organic compounds and reactions.

LABORATORY COURSE-II 30hrs (2 h / w)

Practical-II Volumetric Analysis

(At the end of Semester-II)

Course outcomes:

At the end of the course, the student will be able to;

1. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
2. Understand and explain the volumetric analysis based on fundamental concepts learnt in ionic Equilibria
3. Learn and identify the concepts of a standard solutions, primary and secondary standards
4. Facilitate the learner to make solutions of various molar concentrations. This may include: The concept of the mole; Converting moles to grams; Converting grams to moles; Defining concentration; Dilution of Solutions; Making different molar concentrations.

SEMESTER - III

Course III (ORGANIC CHEMISTRY & SPECTROSCOPY) 60hrs (4 h / w)

Course outcomes:

At the end of the course, the student will be able to;

1. Understand preparation, properties and reactions of halo alkanes, haloarenes and oxygen containing functional groups.
2. Use the synthetic chemistry learnt in this course to do functional group transformations.
3. To propose plausible mechanisms for any relevant reaction.

LABORATORY COURSE -III 30hrs (2 h / w)
Practical Course-III Organic preparations and IR Spectral Analysis
(At the end of Semester- III)

Course outcomes:

On the completion of the course, the student will be able to do the following:

1. How to use glassware, equipment and chemicals and follow experimental procedures in the Laboratory
2. How to calculate limiting reagent, theoretical yield, and percent yield
3. How to engage in safe laboratory practices by handling laboratory glassware, equipment, and chemical reagents appropriately
4. How to dispose of chemicals in a safe and responsible manner
5. How to perform common laboratory techniques including reflux, distillation, recrystallization, vacuum filtration.
6. How to create and carry out work up and separation procedures
7. How to critically evaluate data collected to determine the identity, purity, and percent yield of products and to summarize findings in writing in a clear and concise manner

SEMESTER - IV

Course IV (INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY) 60hrs (4 h / w)

Course outcomes:

At the end of the course, the student will be able to;

1. To learn about the laws of absorption of light energy by molecules and the subsequent photochemical reactions.
2. To understand the concept of quantum efficiency and mechanisms of photochemical reaction.

LABORATORY COURSE -IV 30hrs (2 h / w)
Practical Course-IV Organic Qualitative analysis 50 M
(At the end of Semester- IV)

Course outcomes:

At the end of the course, the student will be able to;

1. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
2. Determine melting and boiling g points of organic compounds
3. Understand the application of concepts of different organic reactions studied in theory part of organic chemistry

**SEMESTER - IV Course V (INORGANIC & PHYSICAL
CHEMISTRY) 60 hrs (4 h / w)**

Course outcomes:

At the end of the course, the student will be able to;

1. Understand concepts of boundary conditions and quantization, probability distribution, most probable values, uncertainty and expectation values
2. Application of quantization to spectroscopy.
3. Various types of spectra and their use in structure determination

SEMESTER - V
Course V LABORATORY COURSE 30hrs (2 h / w)
Practical-Course –V Conductometric and Potentiometric Titrimetry 50 M

Course outcomes:

At the end of the course, the student will be able to;

1. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
2. Apply concepts of electrochemistry in experiments
3. Be familiar with electroanalytical methods and techniques in analytical chemistry which study an analyte by measuring the potential (volts) and/or current (amperes) in an electrochemical cell containing the analyte

SEMESTER - IV

Course V (INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY) 60hrs (4 h / w)

Course outcomes:

At the end of the course, the student will be able to;

1. To learn about the laws of absorption of light energy by molecules and the subsequent photochemical reactions.
2. To understand the concept of quantum efficiency and mechanisms of photochemical reaction.

LABORATORY COURSE -V 30hrs(2 h / w)

Practical Course-V Organic Qualitative analysis 50 M

(At the end of Semester- IV)

Course outcomes:

At the end of the course, the student will be able to;

1. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
2. Determine melting and boiling points of organic compounds
3. Understand the application of concepts of different organic reactions studied in theory part of organic chemistry

SEMESTER - V Course VI (INORGANIC & PHYSICAL CHEMISTRY) 60 hrs (4 h / w)

Course outcomes:

At the end of the course, the student will be able to;

1. Understand concepts of boundary conditions and quantization, probability distribution, most probable values, uncertainty and expectation values
2. Application of quantization to spectroscopy.
3. Various types of spectra and their use in structure determination



GOVERNMENT DEGREE COLLEGE, CHEBROLE

Accredited by NAAC with 'B' Grade

Affiliated to Acharya Nagarjuna University,

Guntur District, Andhra Pradesh, PIN 522 212

Phone No: 08644-254221, 254322 Email: jkc.chebrole@gmail.com

DEPARTMENT OF BOTANY

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21

PROGRAMME: THREE-YEAR B.Sc, BOTANY

PROGRAMME STRUCTURE

First Semester Course I: Fundamentals of Microbes and Non-vascular Plants.	Second Semester Course II: Basics of Vascular plants and Phytogeography.
Third Semester Course III: Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity.	Fourth Semester Course IV: Plant Physiology and Metabolism. Course V: Cell Biology, Genetics and Plant Breeding.
Fifth Semester Course VI : Plant Tissue Culture Course V: Mushroom cultivation	Sixth Semester Semester Internship Programme.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

At the end of the Programme the student will be able to

PSO 1:	Interpret principles, classifications, concepts, theories and Mechanisms
PSO 2:	Analyse hypothesis, procedures, properties, experimental facts and draw conclusions.
PSO 3:	Apply techniques in solving problems, sample analysis and production.
PSO 4:	Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility

COURSE OUTCOMES (COs)

Course Code: BOT1SK

Course Name: Fundamentals of Microbes and Non-vascular Plants.

Upon completion of this course, the student will be able to:	
CO 1	Illustrate diversity among the viruses and prokaryotic organisms and categorize them.
CO 2	Classify fungi, lichens, algae and bryophytes based on the structure reproduction and life cycles.
CO 3	Analyze and ascertain the plant disease symptoms due to viruses and Bacteria.
CO 4	Evaluate the ecological and economic value of microbes, thallophytes and bryophytes.

Course Code: BOT2SK

Course Name: Basics of Vascular plants and Phytogeography.

Upon completion of this course, the student will be able to:	
CO 1	Classify and compare Pteridophytes and Gymnosperms based on their morphology, Anatomy reproduction and life cycles.
CO 2	Explain the process of fossilization and compare the characteristics of extinct and extant plants.
CO 3	Analyze the morphological of the most common angiosperm plants of their localities and recognize their families.
CO 4	Locate different Phytogeographical regions of the world and India and can analyze their floristic wealth.

Course Code: BOT3SK

Course Name: Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity.

Upon completion of this course, the student will be able to:	
CO 1	Understand on the organization of tissues and tissue systems in plants.
CO 2	Illustrate and interpret various aspects of embryology.
CO 3	Appraise various qualitative and quantitative parameters to study the population and community ecology.
CO 4	Correlate the importance of biodiversity and consequences due to its loss.

Course Code: BOT4SK

Course Name: Plant Physiology and Metabolism.

Upon completion of this course, the student will be able to:	
CO 1	Comprehend the importance of water in plant life and mechanisms for transport of water and solutes in plants.
CO 2	Evaluate the role of minerals in plant nutrition and their deficiency symptoms
CO 3	Critically understand the light reactions and carbon assimilation process responsible for synthesis of food in plants.
CO 4	Evaluate the physiological factors that regulate growth and development in plants.
CO 5	Examine the role of light on flowering and explain physiology of plants under stress conditions.

Course Code: BOT5SK

Course Name: Cell Biology, Genetics and Plant Breeding.

Upon completion of this course, the student will be able to:	
CO 1	Distinguish prokaryotic and eukaryotic cells and design the model of a cell.
CO 2	Discuss the basics of Mendelian genetics its variations and interpret inheritance of traits in living beings.
CO 3	Understand the application of principles and modern techniques in plant breeding.
CO 4	Explain the organization of a eukaryotic chromosome, and structure of genetic material.
CO 5	Explain the procedures of selection and hybridization for improvement of crops.

Semester V:

Course Code: BOT 6C

Course Name: 6C Plant Tissue Culture

Upon completion of this course, the student will be able to	
CO1	Comprehend the basic knowledge and application of tissue Culture
CO2	Identify various facilities required to set up a plant tissue cultural laboratory
CO3	Acquire a critical knowledge on sterilization techniques related to plant tissue cultural
CO4	Understand the bio transformation technique for production of secondary metabolites

Semester V

Course Code: BOT 7C

Course Name: 7C Mushroom Cultivation

Upon completion of this course, the student will be able to	
CO1	Understand the structure and life of a mushroom and discriminate edible and poisonous mushrooms
CO2	Identify the basic infrastructure establish a mushroom culture unit
CO3	Demonstrate skills preparation of compost and spawn
CO4	Explain the methods of storage preparation of value-added products and marketing



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DEPARTMENT OF ZOOLOGY

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21

PROGRAMME: THREE-YEAR B.Sc - Zoology

PROGRAMME STRUCTURE

First Semester Course I: Animal Diversity - Biology of Non-Chordates.	Second Semester Course II: Animal Diversity – Biology Of Chordates.
Third Semester Course III: Cell Biology, Genetics, Molecular Biology And Evolution.	Fourth Semester Course IV: Animal Physiology, Cellular Metabolism And Embryology. Course V: Immunology and Animal Biotechnology.

PROGRAMME OUTCOMES (POs):

- Acquire comprehensive Knowledge and effectively apply such knowledge and skills to address various issues.
- Acquire self-learning skills and adapt them to emerging demands at the workplace and in life.
- Access ICT tools effectively and has knowledge of software applications to analyze data.
- Develop scientific thinking processes and use technology for communication and entertainment for the benefit of mankind.
- Predict problems, frame hypotheses, investigate and interpret the empirical data.
- Learn group dynamics and deals individually as well as with teams and groups to perform effectively in diverse teams /groups.
- Develop Efficient Communication & Life Skills and present significant information clearly and concisely to interested groups.
- Understand Environmental Sustainability, propagate and follow environment-friendly practices.
- Develop Societal conciseness, involve voluntarily in societal development activities and address societal issues at the regional, national, and global levels.
- Identify the goals, objectives and components of a project and decide the appropriate time of completion.

COURSE 1: ANIMAL DIVERSITY - BIOLOGY OF NON-CHORDATES

COURSE OUTCOMES:

By the completion of the course, the graduate should be able to-

- Describe general taxonomic rules on animal classification
- Classify Protozoa to Coelenterate with taxonomic keys.
- Classify Phylum Platy helminths to Annelida phylum using examples from parasitic adaptation and vermin composting.
- Describe Phylum Arthropoda to Mollusca using examples and the importance of insects and Molluscans.
- Describe Echinodermata to Hemi Chordata with suitable examples and larval stages in relation to the phylogeny.

COURSE 2: ANIMAL DIVERSITY – BIOLOGY OF CHORDATES

COURSE OUTCOMES:

By the completion of the course the graduate should be able to –

- Describe general taxonomic rules on animal classification of chordates.
- Classify Protochordata to Mammalia with taxonomic keys.
- Understand Mammals with specific structural adaptations
- Understand the significance of dentition and evolutionary significance.
- Understand the origin and evolutionary relationship of different phyla from Prochordata to Mammalia.

COURSE 3: CELL BIOLOGY, GENETICS, MOLECULAR BIOLOGY AND EVOLUTION

COURSE OUTCOMES: The overall course outcome is that the student shall develop a deeper understanding of what life is and how it functions at the cellular level. This course will provide students with deep knowledge in Cell Biology, Animal Biotechnology and Evolution.

By the completion of the course the graduate shall be able to-

- To understand the basic unit of living organisms and to differentiate the organisms by their cell structure.
- Describe the fine structure and function of the plasma membrane and different cell organelles of a eukaryotic cell.
- To understand the history of the origin of a branch of genetics and gain knowledge on heredity, the interaction of genes, and various types of inheritance patterns existing in animals.
- Acquiring in-depth knowledge of various aspects of genetics involved in sex determination, human karyotyping and mutations of chromosomes resulting in various disorders

- Understand the central dogma of molecular biology and the flow of genetic information from DNA to proteins.
- Understand the principles and forces of the evolution of life on earth, the process of evolution of new species and apply the same to develop new and advanced varieties of animals for the benefit of the society.

COURSE 4: ANIMAL PHYSIOLOGY, CELLULAR METABOLISM AND EMBRYOLOGY

COURSE OUTCOMES: This course will provide students with deep knowledge of Physiology, Cellular metabolism and Molecular Biology.

By the completion of the course the graduate shall be able to-

- Understand the functions of important animal physiological systems including digestion, cardio-respiratory and renal systems.
- Understand the muscular system and the neuro-endocrine regulation of animal growth, development and metabolism with special knowledge of hormonal control of human reproduction.
- Describe the structure, classification and chemistry of biomolecules and enzymes responsible for the sustenance of life in living organisms.
- Develop a broad understanding of the basic metabolic activities pertaining to the catabolism and anabolism of various biomolecules.
- Describe the key events in early embryonic development starting from the formation of gametes up to gastrulation and formation of primary germ layers.

COURSE 5: IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY

COURSE OUTCOMES: This course will provide students with deep knowledge of immunology, genetics, embryology and ecology.

By the completion of the course the graduate shall be able to –

- To get knowledge of the organs of the Immune system, types of immunity, cells and organs of immunity.
- To describe the immunological response as to how it is triggered (antigens) and regulated (antibodies).
- Understand the applications of Biotechnology in the fields of industry and agriculture including animal cell/tissue culture, stem cell technology and genetic engineering.
- Get familiar with the tools and techniques of animal biotechnology.

SUBJECT OUTCOMES, SUBJECT SPECIFIC OUTCOMES& COURSE OUTCOMES

B. COM (COMPUTERS & GENERAL) – COURSE OUTCOMES

1. Enables learners to get theoretical and practical exposure in the commerce sector which includes Accounts, Commerce, Marketing, Management, Economics, Environment etc.
2. Develops communication skills and build confidence to face the challenges of the corporate world.
3. Enhances the capability of decision making at personal and professional levels.
4. Makes students industry ready and develop various managerial and accounting skills for better professional opportunities.
5. develops entrepreneurial skills amongst learners

B. COM (COMPUTERS & GENERAL) – SUBJECT VISE OUTCOMES

Course		Outcomes	
S.No	Subject	Learning Outcome	Specific Outcome
1	Fundamentals of Accounting	1. Transmits understanding of basic concepts of business along with setting business unit and logical provisions for initiating business. 2. Gives clue to learners on entrepreneurship and exposes them to problems and prospects of women entrepreneurs. 3. Conveys to the learners the current trends in business	1. Analyze the difference between cash book and pass book in terms of balance and make reconciliation. 2. Critically examine the balance sheets of a sole trader for different accounting periods. Design new accounting formulas & principles for business organizations.
2	Business Organization & Management	1. Understand different forms of business organizations. Comprehend the nature of Joint Stock Company and formalities to promote a Company. 2. Describe the Social	1. Design and plan to register a business firm. Prepare different documents to register a company at his own. 2. Articulate new

		Responsibility of Business towards the society. 3. Critically examine the various organizations of the business firms and judge the best among them	models of business organizations.
3	Business Environment	1. Understand the concept of business environment. Define Internal and External elements affecting business environment. 2. Explain the economic trends and its effect on Government policies. 3. Critically examine the recent developments in economic and business policies of the Government.	1. Evaluate and judge the best business policies in Indian business environment. 2. Develop the new ideas for creating good business environment
4	Information Technology	1. Provides fundamental computing knowledge and empowers the use of office productivity tools. 2. Familiarizes students with E-Commerce infrastructure and Electronic Payment systems used in today's Digital age	1. Provides computerized Accounting and Auditing knowledge.
5	Financial Accounting	1. Understand the concept of consignment and learn the accounting treatment of the various aspects of consignment. 2. Analyze the accounting process and preparation of accounts in consignment and joint venture. 3. Distinguish Joint Venture and Partnership and to learn the methods of maintaining records under Joint Venture	1. Determine the useful life and value of the depreciable assets and maintenance of Reserves in business entities. 2. Design an accounting system for different models of businesses at his own using the principles of existing accounting system.
		1. Describe the nature of economics in dealing with the issues of scarcity of resources. Analyze	1. Use economic analysis to evaluate controversial issues and policies.

6	Business Economics	supply and demand analysis and its impact on consumer behavior. - Evaluate the factors, such as production and costs affecting firms' behavior. - Recognize market failure and the role of government in dealing with those failures.	Apply economic models for managerial problems, identify their relationships, and formulate the decision-making tools to be applied for business
7	Banking Theory and Practice	- Understand the basic concepts of banks and functions of commercial banks. Demonstrate an awareness of law and practice in a banking context. - Engage in critical analysis of the practice of banking law. - Organize information as it relates to the regulation of banking products and services.	- Critically examine the current scenario of Indian Banking system. - Formulate the procedure for better service to the customers from various banking innovations.
8	E-Commerce & Web Designing	- Understand the basic concepts of technology used in the fields of management systems - Have the knowledge of different management information systems	Be aware of the ethical, social, and security issues of information system
9	Advanced Accounting	- Understand the concept of Non-profit organizations and its accounting process - Comprehend the concept of single-entry system and preparation of statement of affairs - Familiarize with the legal formalities at the time of dissolution of the firm	- Prepare financial statements for partnership firm on dissolution of the firm. - Employ critical thinking skills to understand the difference between the dissolution of the firm and dissolution of partnership
10	Business Statistics	- Understand the importance of Statistics in real life - Formulate complete, concise, and correct mathematical proofs.	- Build and assess data-based models. - Learn and apply the statistical tools in day life. Create quantitative models

		3. Frame problems using multiple mathematical and statistical tools, measuring relationships by using standard techniques	to solve real world problems in appropriate contexts
11	Marketing	1. Develop an idea about marketing and marketing environment. 2. Understand the consumer behavior and market segmentation process. 3. Comprehend the product life cycle and product line decisions. 4. Know the process of packaging and labeling to attract the customers.	1. Formulate new marketing strategies for a specific new product. 2. Develop new product line and sales promotion techniques for a given product. 3. Design and develop new advertisements to given products.
12	Programming with C & C++	1. Helps to develop a programmer	1. Lets you get hands on with low level programming concepts and its helps to understand how computers think and operate
14	Corporate Accounting	1. Understand the Accounting treatment of Share Capital and aware of process of book building. 2. Demonstrate the procedure for issue of bonus shares and buyback of shares. 3. Comprehend the important provisions of Companies Act, 2013 and prepare final accounts of a company with Adjustments	1. Participate in the preparation of consolidated accounts for a corporate group. 2. Understand analysis of complex issues, formulation of well-reasoned arguments and reaching better conclusions. 3. Communicate accounting policy choices with reference to relevant laws and accounting standards
15	Cost & Management	1. Understand various costing methods and management techniques. 2. Apply Cost and Management accounting methods for both manufacturing and	1. Compare and contrast the financial statements of firms and interpret the results. 2. Prepare analysis of various special

	Accounting	service industry. 3. Prepare cost sheet, quotations, and tenders to organization for different works. 4. Analyze cost-volume-profit techniques to determine optimal managerial decisions.	decisions, using relevant management techniques
16	Income Tax	1. Acquire the complete knowledge of the tax evasion, tax avoidance and tax planning 2. Understand the provisions and compute income tax for various sources. 3. Grasp amendments made from time to time in Finance Act.	1. Compute total income and define tax complications and structure. 2. Prepare and File IT returns of individual at his own.
17	Business Laws	1. Understand the legal environment of business and laws of business. 2. Highlight the security aspects in the present cyber-crime scenario. 3. Apply basic legal knowledge to business transactions. Understand the various provisions of Company Law	1. Engage critical thinking to predict outcomes and recommend appropriate action on issues relating to business associations and legal issues. 2. Integrate concept of business law with foreign trade.
18	Auditing	1. Understanding the meaning and necessity of audit in modern era 2. Comprehend the role of auditor in avoiding the corporate frauds 3. Identify the steps involved in performing audit process 4. Determine the appropriate audit report for a given audit situation	1. Apply auditing practices to different types of business entities 2. Plan an audit by considering concepts of evidence, risk and materiality
19	Goods and Service Tax	1. Understand the basic principles underlying the Indirect Taxation Statutes. 2. Examine the method of tax credit. Input and Output Tax credit and	1. Compute the assessable value of transactions related to goods and services for levy and determination of duty liability.

		Cross Utilization of Input Tax Credit. 3. Identify and analyze the procedural aspects under different applicable statutes related to GST.	2. Develop various GST Returns and reports for business transactions in Tally
20	Data base Management System	1. Explain the relationship between the fundamental elements of data base management system	1. Familiar with the basic database storage structures

GOVERNMENT DEGREE COLLEGE: CHEBROLE: ANDHRA PRADESH

DEPARTMENT OF COMMERCE

ACADEMIC YEAR 2021-2022

SUBJECT OUTCOMES, SUBJECT SPECIFIC OUTCOMES & COURSE OUTCOMES

B. COM (COMPUTERAPPLICATIONS) – COURSE OUTCOMES

1. Enables learners to get theoretical and practical exposure in the commerce sector which includes Accounts, Commerce, Marketing, Management, Economics, Environment etc.
2. Develops communication skills and build confidence to face the challenges of the corporate world.
3. Enhances the capability of decision making at personal and professional levels.
4. Makes students industry ready and develop various managerial and accounting skills for better professional opportunities.
5. develops entrepreneurial skills amongst learners
6. Community Service projects after II semester will give proper awareness about the various social issues to the students, and also inculcate the research techniques and methods.
7. Internship after V semester and VI semester will give practical knowledge how the accountancy, management, marketing theory's are implemented in the real world scenario, This also leads self-employment, and imbibes new entrepreneur skills

B. COM (COMPUTERS & GENERAL) – SUBJECT VISE OUTCOMES

Course		Outcomes	
S.No	Subject	Learning Outcome	Specific Outcome
1	Fundamentals of Accounting	1. Transmits understanding of basic concepts of business along with setting business unit and logical provisions for initiating business. 2. Gives clue to learners on entrepreneurship and exposes them to problems and prospects of women entrepreneurs. 3. Conveys to the learners the current trends in business	1. Analyze the difference between cash book and pass book in terms of balance and make reconciliation. 2. Critically examine the balance sheets of a sole trader for different accounting periods. Design new accounting formulas & principles for business organizations.

2	Business Organization & Management	1. Understand different forms of business organizations. Comprehend the nature of Joint Stock Company and formalities to promote a Company. 2. Describe the Social Responsibility of Business towards the society. 3. Critically examine the various organizations of the business firms and judge the best among them	1. Design and plan to register a business firm. Prepare different documents to register a company at his own. 2. Articulate new models of business organizations.
3	Business Environment	1. Understand the concept of business environment. Define Internal and External elements affecting business environment. 2. Explain the economic trends and its effect on Government policies. 3. Critically examine the recent developments in economic and business policies of the Government.	1. Evaluate and judge the best business policies in Indian business environment. 2. Develop the new ideas for creating good business environment
4	Information Technology	1. Provides fundamental computing knowledge and empowers the use of office productivity tools. 2. Familiarizes students with E-Commerce infrastructure and Electronic Payment systems used in today's Digital age	1. Provides computerized Accounting and Auditing knowledge.
5	Financial Accounting	1. Understand the concept of consignment and learn the accounting treatment of the various aspects of consignment. 2. Analyze the accounting process and preparation	1. Determine the useful life and value of the depreciable assets and maintenance of Reserves in business entities. 2. Design an accounting system for different

		of accounts in consignment and joint venture. 3. Distinguish Joint Venture and Partnership and to learn the methods of maintaining records under Joint Venture	models of businesses at his own using the principles of existing accounting system.
6	Business Economics	1. Describe the nature of economics in dealing with the issues of scarcity of resources. Analyze supply and demand analysis and its impact on consumer behavior. 2. Evaluate the factors, such as production and costs affecting firms' behavior. 3. Recognize market failure and the role of government in dealing with those failures.	1. Use economic analysis to evaluate controversial issues and policies. 2. Apply economic models for managerial problems, identify their relationships, and formulate the decision-making tools to be applied for business
7	Banking Theory and Practice	1. Understand the basic concepts of banks and functions of commercial banks. Demonstrate an awareness of law and practice in a banking context. 2. Engage in critical analysis of the practice of banking law. 3. Organize information as it relates to the regulation of banking products and services.	1. Critically examine the current scenario of Indian Banking system. 2. Formulate the procedure for better service to the customers from various banking innovations.
8	E-Commerce & Web Designing	1. Understand the basic concepts of technology used in the fields of management systems 2. Have the knowledge of different management information systems	1. Be aware of the ethical, social, and security issues of information system
		1. Understand the concept of Non-profit organizations and its	1. Prepare financial statements for partnership firm on

9	Advanced Accounting	accounting process 2. Comprehend the concept of single-entry system and preparation of statement of affairs 3. Familiarize with the legal formalities at the time of dissolution of the firm	dissolution of the firm. 2. Employ critical thinking skills to understand the difference between the dissolution of the firm and dissolution of partnership
10	Business Statistics	1. Understand the importance of Statistics in real life 2. Formulate complete, concise, and correct mathematical proofs. 3. Frame problems using multiple mathematical and statistical tools, measuring relationships by using standard techniques	1. Build and assess data-based models. 2. Learn and apply the statistical tools in day life. Create quantitative models to solve real world problems in appropriate contexts
11	Marketing	1. Develop an idea about marketing and marketing environment. 2. Understand the consumer behavior and market segmentation process. 3. Comprehend the product life cycle and product line decisions. 4. Know the process of packaging and labeling to attract the customers.	1. Formulate new marketing strategies for a specific new product. 2. Develop new product line and sales promotion techniques for a given product. 3. Design and develop new advertisements to given products.
12	Programming with C & C++	1. Helps to develop a programmer	1. Lets you get hands on with low level programming concepts and its helps to understand how computers think and operate
		1. Understand the Accounting treatment of Share Capital and aware of process of book building.	1. Participate in the preparation of consolidated accounts for a corporate group.

14	Corporate Accounting	2. Demonstrate the procedure for issue of bonus shares and buyback of shares. 3. Comprehend the important provisions of Companies Act, 2013 and prepare final accounts of a company with Adjustments	2. Understand analysis of complex issues, formulation of well-reasoned arguments and reaching better conclusions. 3. Communicate accounting policy choices with reference to relevant laws and accounting standards
15	Cost & Management Accounting	1. Understand various costing methods and management techniques. 2. Apply Cost and Management accounting methods for both manufacturing and service industry. 3. Prepare cost sheet, quotations, and tenders to organization for different works. 4. Analyze cost-volume-profit techniques to determine optimal managerial decisions.	1. Compare and contrast the financial statements of firms and interpret the results. 2. Prepare analysis of various special decisions, using relevant management techniques
16	Income Tax	1. Acquire the complete knowledge of the tax evasion, tax avoidance and tax planning 2. Understand the provisions and compute income tax for various sources. 3. Grasp amendments made from time to time in Finance Act.	1. Compute total income and define tax complications and structure. 2. Prepare and File IT returns of individual at his own.
17	Business Laws	1. Understand the legal environment of business and laws of business. 2. Highlight the security aspects in the present cyber-crime scenario. 3. Apply basic legal	1. Engage critical thinking to predict outcomes and recommend appropriate action on issues relating to business associations

		knowledge to business transactions. Understand the various provisions of Company Law	and legal issues. 2. Integrate concept of business law with foreign trade.
18	Auditing	1. Understanding the meaning and necessity of audit in modern era 2. Comprehend the role of auditor in avoiding the corporate frauds 3. Identify the steps involved in performing audit process 4. Determine the appropriate audit report for a given audit situation	1. Apply auditing practices to different types of business entities 2. Plan an audit by considering concepts of evidence, risk and materiality
19	Goods and Service Tax	1. Understand the basic principles underlying the Indirect Taxation Statutes. 2. Examine the method of tax credit. Input and Output Tax credit and Cross Utilization of Input Tax Credit. 3. Identify and analyze the procedural aspects under different applicable statutes related to GST.	1. Compute the assessable value of transactions related to goods and services for levy and determination of duty liability. 2. Develop various GST Returns and reports for business transactions in Tally
20	Data base Management System	1. Explain the relationship between the fundamental elements of data base management system	1. Familiar with the basic database storage structures
21	Community Service Project	1. To helps the students to get awareness about the various social issues and problems	1. To provide the Research skills and research writing techniques
22	Internships	1. Helps the students to get understand with the practical scenario, about the various management, organizing techniques and marketing strategies	1. This course will imbibe the entrepreneur skills to the new aspirants.



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DEPARTMENT OF COMPUTER APPLICATIONS

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21

PROGRAMME: THREE-YEAR B.Com, COMPUTER APPLICATIONS

PROGRAMME STRUCTURE

First Semester Course I: Information Technology	Second Semester Course II: E-Commerce and Web Designing
Third Semester Course III: Programming with C & C++	Fourth Semester Course IV: Object-Oriented Programming with JAVA Course V: Database Management System
Fifth Semester Semester Internship Programme	Sixth Semester Course VI A: Big Data Analytics using R Course VII A: Data Science using Python

PROGRAMME OUTCOMES:

PO-1	Students should possess the essential domain knowledge to conduct a business, accountancy along with problem-solving skills to build computer-based solutions for business problems.
PO-2	Students should be able to analyze and provide feasible solutions to the real-world business problems using their technical knowledge and implementation skills.
PO-3	Students should acquire the vital knowledge of programming, databases and web technology to tackle business problems effectively.
PO-4	Acquires the basic communication skills, employable skills and technical skills in addition to contemporary business knowledge to become career-ready.

PROGRAMME SPECIFIC OUTCOMES:

PSO-1	Acquire knowledge in Computer programming languages to solve essential business problems.
PSO-2	Implementing automated accounting practices and application of computer skills for effective conduct of business.
PSO-3	Acquires analytical and technical skills to analyze the business problems with ease and efficiency.
PSO-4	Propose feasible ideas and business solutions in accordance with the prevailing day-to-day problems.
PSO-5	Pursue higher education and could develop zeal to do subject-specific research.

I YEAR - B.Com (CA) - I SEMESTER
PAPER 1 – INFORMATION TECHNOLOGY

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	Bridge the fundamental concepts of computers with the present level of knowledge of the students.
CO-2	Acquaint with operating systems, programming languages, peripheral devices, networking, multimedia and internet.
CO-3	Use systems development, word-processing, spreadsheet, and presentation software to solve basic information systems problems.
CO-4	Use the skills learnt to interpret, produce, and present work-related documents and information effectively and accurately.

I YEAR - B.Com (CA) - II SEMESTER
PAPER 1: E-COMMERCE & WEB DESIGNING

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	Understand the foundations and importance of E-commerce and analyze the impact of E-commerce on business models and strategy.
CO-2	Define Internet trading relationships including Business to Consumer, Business-to-Business, and Consumer to Consumer etc.
CO-3	Understand the principles of creating an effective web page, including an in-depth consideration of information architecture.
CO-4	Explore a web development framework as an implementation example and create dynamically generated website complete with user accounts, page level security, modular design using css

II YEAR - B.Com (CA) - III SEMESTER
PAPER 1 – PROGRAMMING WITH C & C++

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	Develop programming skills and learn the syntax and semantics of a programming language.
CO-2	Become familiar with programming environment of C and C++ and should be able to work with textual information (characters and strings) & arrays.
CO-3	Understand the concept of object thinking within the framework of functional model.
CO-4	Analyze how C++ improves C with object-oriented features.

II YEAR - B.Com (CA) - IV SEMESTER
PAPER 1 – DATABASE MANAGEMENT SYSTEM

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	Understand basic database concepts, including the structure and operation of the relational data model.
CO-2	Understand and successfully apply logical database design principles, including ER diagrams and database normalization.
CO-3	Write SQL Queries in accordance with the data that has to be retrieved from the database.
CO-4	Write PL/SQL programs using the concepts of Cursor Management, Stored Procedures, Stored Functions, Database Triggers and Packages.

II YEAR - B.Com (CA) - IV SEMESTER
PAPER 2 – Object Oriented Programming with Java

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	Understand the basic object oriented programming concepts and apply them to solve real world problems.
CO-2	Develop reusable programs using the concepts of inheritance, polymorphism, interfaces and packages.
CO-3	Apply the concepts of Multithreading and Exception handling to develop efficient and error free codes.
CO-4	Design event driven GUI and web related applications which mimic the real word scenarios.

III YEAR - B.Com (CA) - V SEMESTER
SEMESTER INTERNSHIP PROGRAMME

III YEAR - B.Com (CA) - VI SEMESTER PAPER 1 – Big Data Analytics using R

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	Understand data and classification of digital data.
CO-2	Understand Big Data Analytics and loading data into R
CO-3	Organize data in the form of R objects and manipulate them as needed.
CO-4	Perform analytics using R programming.

III YEAR - B.Com (CA) - VI SEMESTER PAPER 2 – Data Science using Python

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	Understand basic concepts of Data Science
CO-2	Understand why python is a useful scripting language for developers.
CO-3	Use standard programming constructs like selection and repetition and aggregated data (list, tuple, and dictionary)
CO-4	Implement functions and modules.



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Department of History

Semester-wise Syllabus under CBCS 2020-21

I Year B. A. Semester – I

Course1: ANCIENT INDIAN HISTORY & CULTURE (from Indus Valley Civilization to 13th Cen A.D)

Outcomes:

After successful completion of this course, the student will be able to:

- Identify and define various kinds of sources and understand how history books are Shaped.
- Compare and contrast various stages of progress from IVC to Vedic age and analyze the Jain, Buddhist and Vedic faiths.
- Increase the awareness and appreciation of Transition from Territorial States to Emergence of Empires.
- Analyze the emergence of the Mauryan and Gupta empires during the “classical age” in India.
- Evaluate the key facets of ancient society, polity and culture in South India—the feudalism, and the rise of technology and commerce.
- Critically examine the nature of monarchic rule and develop an comprehensive understanding of cultural evolution during ancient period.
- Visualize where places are in relation to one another through map pointing.

I Year B. A. – Semester – II

Course 2: MEDIEVAL INDIAN HISTORY & CULTURE (1206 A.D to 1764 A.D)

Outcomes:

After successful completion of this course, the student will be able to:

- Understand the socio, economic and cultural conditions of medieval India
- Describe the advent of Islam in India and study the traces of political and cultural expansion of Turks & Afghans
- Explain the Administration and art and architecture of Vijayanagar Rulers, Mughals and also analyse the rise of the Marathas and the contribution of Shivaji
- Evaluate the establishment of the British rule in India and understand the dangerous consequences disunity at all levels
- Analyze the emergence of composite culture in Indian
- Visualize where places are in relation to one another through map pointing

I Year B. A. – Semester – III

Course 3: MODERN INDIAN HISTORY & CULTURE (1764-1947 A. D)

Outcomes:

After successful completion of this course, the student will be able to:

- Unearth the true nature of the British rule and its disastrous impact on Indian economy and society
- Gauge the disillusionment of people against the Company's rule even during the early 19th century
- Assess the causes and effects of Reformation movements and also inspire the public to overthrow inequalities of the present day society
- Rise above petty parochial issues after understanding the sacrificial saga of freedom struggle
- Evaluate the undercurrent of communal politics that led to India's partition and identify the enemies of India's integrity and sovereignty
- Visualize where places are in relation to one another through map pointing

II Year B. A. – Semester – IV

Course 4: HISTORY & CULTURE OF ANDHRA (FROM 1512 TO 1956 AD)

Outcomes:

After successful completion of this course, the student will be able to:

- Interpret social and political and cultural transformation from medieval to modern Andhra
- Relate key historical developments during medieval period occurring in coastal Andhra and Telangana regions and analyze socio - political and economic changes under QutbShahi rulers
- Understand gradual change, or change in certain aspects of society in Andhra, rather than rapid or fundamental changes
- Explain how the English East India Company became the most dominant power and outline the impact of colonial policies on different aspects in Andhra
- Outline the issues related to caste, women, widow remarriage, child marriage, social reforms and the laws and policies of colonial administration towards these issues
- Take pride in the non-violence struggle for Indian Independence and relate the importance of peace in everyday life
- Apply the knowledge of the regional history to understand the regional, linguistic and other cultural aspirations of the present day society
- Visualize where places are in relation to one another through map pointing

I/II Year B. A. – Semester IV

Course 5: HISTORY OF MODERN WORLD (From 15th Cent. AD to 1945 AD)

Outcomes:

After successful completion of this course, the student will be able to:

- Demonstrate advanced factual knowledge of world histories, politics, and cultures
- Assess and appraise the developments in art, literature, and society during the Renaissance and utilize content knowledge of the Reformation and Counter Reformation to make predictions about the evolution of Christianity in Europe and abroad
- Evaluate the causes for the Glorious Revolution and American Revolution and identify the background for the evolution of human rights movement
- Understand the main events of the French Revolution and its significance in the shift in European culture from Enlightenment to Romanticism
- Think how Russia's traditional monarchy was replaced with the world's first Communist state.
- Know how the world wars affected people all over the world and the destruction they caused
- Develop the intellectual curiosity and habits of thought that will lead to life-long learning and continued engagement with European history, literature, culture, languages, and current affairs and acquire advanced international and intercultural competency through coursework in international studies
- Visualize where places are in relation to one another through map pointing

III Year B. A. – Semester V

SEMESTER INTERNSHIP PROGRAMME

III Year B. A. – Semester VI

Course 6B: Tourism and Hospitality Services

Outcomes:

Students after successful completion of the course will be able to:

1. Understand hospitality as a career
2. Inculcate interpersonal skills
3. Develop the ability for multitasking and crisis management
4. Understands the spirit of teamwork
5. Acknowledge the importance of guest service and satisfaction

III Year B. A. – Semester VI

Course 7B: Tourism and Hospitality Services

Outcomes:

Students after successful completion of the course will be able to:

1. Acquire tour guiding, operating and soft skills
2. Understand different situations under which one has to work
3. Cultivate cultural awareness and flexibility
4. Understand and apply team spirit
5. Plan and organize tour operations efficiently

GOVERNMENT DEGREE COLLEGE :: CHEBROLE:: ANDHRA PRADESH

DEPARTMENT OF ECONOMICS

ACADEMIC YEAR 2020-2021

ECONOMICS (UG) SYLLABUS

For Semesters I To VI

Sem	Course	Title of the Course	Hours	Credits	Marks
I	1	Microeconomic Analysis	5	4	100
II	2	Macroeconomic Analysis	5	4	100
III	3	Development Economics	5	4	100
IV	4	Banking and International Trade	5	4	100
V	5	Economic Development and Indian Economy	5	4	100
V	6	Indian and Andhra Pradesh Economy	5	4	100
VI	7-A (Elective)	Agricultural Economics	5	4	100
VI	8-A1 (Cluster-Elective)	Agribusiness Environment in AP	5	4	100
VI	8-A2 (Cluster-Elective)	Agricultural Output Marketing	5	4	100
VI	8-A3 (Cluster-Elective)	Agricultural Input Marketing	5	4	100

VISION AND MISSION OF DEPARTMENT OF ECONOMICS

VISION:

- ❖ To continuously strive to provide quality education in tune with orientation towards highest academic excellence.
- ❖ To provide holistic learning opportunities to the students.
- ❖ Interact with students with the greater community and provide them the quality education.

MISSION:

- ❖ To prepare students for acquiring applied knowledge of economics to enhance their employability and entrepreneurship.
- ❖ Providing quality instructions to the students to prepare them for successful careers.

PROGRAMME OUTCOMES, SPECIFIC OUTCOMES AND COURSE OUTCOMES

BA (ECONOMICS) – PROGRAMME OUTCOMES

- To informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational and personal) from different perspectives.
- Develop the ability to explain core economic terms, concepts and theories.
- Demonstrate the ability to employ the “economic way of thinking”.
- Apply economic theories and concepts to contemporary social issues, as well as formulation and analysis of policy.
- Be able to use critical thinking skills within the discipline of economics about economic matters.
- Develop an awareness of career choices for undergraduate economic majors and the options for graduate study.
- Demonstrate empathetic social concern and equity-centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
- Recognize different value systems including that of own, understand the moral dimensions of our decisions, and accept responsibility for them.

- Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.
- Students will be able to demonstrate an ability to identify alternative solutions to problems.
- Students will be able to demonstrate an ability to formulate and defend problem solutions.

BA (ECONOMICS) - SPECIFIC OUTCOMES

1. How the consumers and producers will take rational decisions in the context of unlimited needs and availability of scarce resources.
2. How the economy at the aggregate level works, what are the determinants of national income, prices, demand for and supply of money, poverty, and unemployment in an economy.
3. He/she Gets understanding of the process of economic growth, economic development, sustainable growth in the context of existence of trade-off between rapid economic growth and environmental sustainability in the long- run.
4. To Gain understanding of the basic concepts and principles of international trade, role of the government through its policy, balance of payment accounts and BOP crisis.
5. To outline the historical perspective of globalization and Role of WTO, its functions and its implications on the world trade.
6. To help in understanding EXIM policy, FDI regulations, role of trade credit agencies and FEMA. And to explicate the basics of International Financial markets such as Capital markets, Forex markets, Debt Instruments, Rupee convertibility etc.
7. He/she is expected to demonstrate the following cognitive abilities and psychomotor skills.
8. To provide a learning exposure to students about the environment where Agri Business is conducted.
9. To enable student to understand policy environment, public - private policy domains, Agri sub sector analysis.
10. To enable students to appreciate the range of possible government agribusiness sector Interventions.

BA (ECONOMICS) – COURSE OUTCOMES

SEM – I – MICRO ECONOMIC ANALYSIS (COURSE-1):

CO-1	Understanding various terms and concepts relating to microeconomic analysis with the help of examples of real life
CO-2	Consumer's equilibrium and consumer's surplus using indifference curve analysis.
CO-3	Various laws and principles of consumption, production, and income distribution.
CO-4	Analysis and evaluation of various laws and principles of microeconomic analysis and market conditions and application of the concept of demand elasticity and its relation with Average and Marginal Revenue.

SEM – II – MACRO ECONOMIC ANALYSIS (COURSE-2):

CO-1	Remembers and states in a systematic way of various concepts, definitions, laws and principles of macroeconomic theory with reference to income, employment, money, banking and finance
CO-2	Understanding various terms, concepts, laws and principles, theories relating to income, employment, consumption, investment, money, price-level and phases of trade cycles.
CO-3	Critically examines using data and figures of various theories of macroeconomics with reference to their assumptions, implications and applicability.

SEM – III – DEVELOPMENT ECONOMICS (COURSE-3):

CO-1	Students can gain knowledge on Various concepts and definitions and indicators relating to economic growth and Development including recent developments
CO-2	Understanding Distinction between growth and development with examples, characteristics of developing and developed economies and distinction between the two factors contributing to development, Choice of Techniques and a few important models and strategies of growth
CO-3	Draws critical diagrams and graphs to explain the models and strategies to highlight empirical evidences to support the strategies

SEM – IV – BANKING AND INTERNATIONAL TRADE (COURSE-4):

CO-1	Explain the fundamental theories and concepts of international trade and finance and apply for the management decisions.
CO-2	Apply functions, provisions of international trade system and functions to facilitate the global trade. Students will be able analyse impact of WTO on current global trade in detail.
CO-3	Analyse the organizations allocate portfolio assets and take investment decisions. Students will be able to apply the different methods to mitigate the foreign trade and exchange rate risks in their respective organizations after they are recruited.
CO-4	Integrate concept and apply the knowledge of capital budgeting decisions to mitigate the financial risks of organizations.

SEM – V – ECONOMIC DEVELOPMENT AND INDIAN ECONOMY (COURSE-5):

CO-1	Develop ideas of the basic characteristics of Indian economy, its potential on natural resources.
CO-2	Understand the importance, causes and impact of population growth and its distribution, translate and relate them with economic development.
CO-3	Grasp the importance of planning undertaken by the government of India, have knowledge on the various objectives, failures and achievements as the foundation of the ongoing planning and economic reforms taken by the government.
CO-4	Understand agriculture as the foundation of economic growth and development, analyse the progress and changing nature of agricultural sector and its contribution to the economy as a whole.
CO-5	Not only be aware of the economy as a whole, they would understand the basic features of Mizoram's economy, sources of revenue, how the state government finance its programmes and projects.

SEM – V – INDIAN AND ANDHRA PRADESH ECONOMY (COURSE-6):

CO-1	Understanding the available resources, demographic issues, general problems of poverty and unemployment and relevant policies
CO-2	Sector specific problems, remedial policies and their effectiveness relating to Agriculture and Industrial Sectors of Indian and AP economy and infrastructure issues of AP economy

CO-3	Critically examines using data and figures on leading issues of current importance relating to India and AP economy, major policies and programmes. Covid– 19 and its impact on Indian economy.
CO-4	To explain the achievements of Indian economy with reference to the objectives of planning and policy and make critical evaluation.

SEM – VI – AGRICULTURAL ECONOMICS (COURSE-7A):

CO-1	Sensitize the overall development and engine of growth in agriculture. Draw distinctive features of rural and urban economy or agricultural and non-agricultural which can influence the whole economy.
CO-2	Learn and identify the opportunities open/available in those flourishing sectors such as horticulture, fishing and floriculture and forestry. Find new investment opportunities to add income and employment.
CO-3	Understand limited resources available in the economy. Realize the need to exploit and utilize through development and improvement of production techniques.
CO-4	Gain knowledge of the causes of regional variations in productivity and production, social and economic inequality, size of land holdings and lack of quality inputs etc. and suggest appropriate measures for the whole economy.

SEM – VI – AGRIBUSINESS ENVIRONMENT IN AP (COURSE-8A1):

CO-1	Various linkages of agribusiness in academic, industry and public sector.
CO-2	Developing a policy paper.
CO-3	Relationship in different components of agribusiness and predicting trends in the domain.

SEM – VI – AGRICULTURAL OUTPUT MARKETING (COURSE-8A2):

CO-1	Enable students to gain knowledge on agricultural marketing, challenges and prospects for improving agricultural marketing system.
CO-2	Gain skills to analyse Marketing Functions, Market Information and Intelligence.
CO-3	Imparting knowledge of the marketing efficiency and agricultural prices.
CO-4	Learn the Markets and Market Structure.
CO-5	Provide the platform to the students of Marketing of Agricultural Inputs.

SEM – VI – AGRICULTURAL INPUT MARKETING (COURSE-8A3):

CO-1	Give the students an understanding of different marketing concept and marketing system in context of agricultural inputs.
CO-2	Understand to the Overview of Input Marketing and Seed Marketing.
CO-3	Understand to the Fertilizer Marketing, Plant Protection Chemicals.
CO-4	Understand to the Farm Machinery and Implement.



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DEPARTMENT OF POLITICAL SCIENCE

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21

PROGRAMME: THREE YEAR B.A POLITICAL SCIENCE

PROGRAMME STRUCTURE

First Semester -INTRODUCTION TO POLITICAL SCIENCE	Second Semester -BASIC ORGANS OF THE GOVERNMENT
Third Semester - INDIAN GOVERNMENT AND POLITICS	Fourth Semester -INDIAN POLITICAL PROCESS -WESTREN POLITICAL THOUGHT
Fifth Semester - INTERNSHIP	Sixth Semester - ELECTORAL POLITICS AND VOTING BEHAVIOUR-6D -LEGISLATIVE PROCEDURES AND PRACTICES-7D

PROGRAMME OUTCOMES :

P01	Students can understand the world in which they are living.
P02	Students will have comprehensive knowledge and understanding on worldwide issues.
P03	Students will be able to choose the best among the available opportunities in the political System
P04	Students will develop knowledge of theories, concepts and research methods in all social sciences.
P05	Political knowledge and consequences will be developed in students.
P06	Students will possess basic subject knowledge to compete the competitive examinations successfully.

PROGRAMME SPECIFIC OUTCOMES:

Ps01	Students should be able to thoroughly understand the study of political science.
Ps02	Students should be in a position to understand and follow changes in patterns of political structures
Ps03	Students should have to concentrate on political knowledge to observe the field level circumstances
Ps04	Students should be able to understand the cultural, social, political, economic and constitutional environment from the historical perspective of Indian administration
Ps05	Students should understand the activity and dynamics of Indian government and politics
Ps06	Students should be able to introduce their skills to work effectively in multi-disciplinary teams.
Ps07	Enabling students to develop a positive attitude towards political science as an interesting subject of study

COURSE OUTCOMES :

COURSE : SEMESTER I – INTRODUCTION TO POLITICAL SCIENCE

CO-1	Recall the previous knowledge about Political Science and understand the nature and scope, traditional and modern approaches of Political Science.
CO-2	Understand concepts intrinsic to the study of Political Science.
CO-3	Have solid theoretical understanding of Rights and its theories along with the basic aspects of certain political ideologies.
CO-4	Apply the knowledge to observe the field level phenomena

COURSE: SEMESTER II- BASIC ORGANS OF THE GOVERNMENT

CO-1	Understand the Origin and Evolution of the concept of Constitutionalism and Classification of Constitutions.
CO-2	Acquaint themselves with different theories of origin of State.
CO-3	Understand and analyses organs and forms of Governments along with a deep insight into the various agents involved in the political process.
CO-4	Apply the knowledge to analyse and evaluate the existing systems

COURSE: SEMESTER III- INDIAN GOVERNMENT AND POLITICS

CO-1	Acquire knowledge about the historical background of Constitutional development in India, appreciate philosophical foundations and salient features of the Indian Constitution
CO-2	Analyze the relationship between State and individual in terms of Fundamental Rights and Directive Principles of State Policy.
CO-3	Understand the composition of and functioning of Union Government as well as State Government and finally
CO-4	Acquaint themselves with the judicial system of the country and its emerging trends such as judicial reforms.

COURSE : SEMESTER- IV- INDIAN POLITICAL PROCESS – (PAPER-1)

CO-1	Know and understand the federal system of the country and some of the vital contemporary emerging issues.
CO-2	Evaluate the electoral system of the country and to identify the areas of electoral reforms.
CO-3	Know the constitutional base and functioning of local governments with special emphasis on 73rd & 74th Constitutional Amendment Acts.
CO-4	Understand the dynamics of Indian politics, challenges faced and gain a sensitive comprehension to the contributing factors.
CO-5	Apply the knowledge and critically comprehend the functioning of some of the regulatory and governance institutions.
CO-6	Propose theoretical outline alternate models

COURSE : SEMESTER- IV- WESTERN POLITICAL THOUGHT (PAPER-II)

- To delineate the contribution of classical political thinkers to western political thinkers
- To cover the early medieval period to the beginning of the modern thought
- To highlight the importance of liberal thought
- To understand the basic concept of liberal democratic thought
- To enlighten the philosophical idealism and its critique

COURSE : SEMESTER V – INTERNSHIP (6Months)

COURSE : SEMESTER VI - ELECTORAL POLITICS AND VOTING BEHAVIOUR-6D (PAPER-I)

1. Acquaint student with the structure and manner of functioning of Election Commission of India.
2. Understand the political issues in Electoral Politics.
3. Provide an overview on voter turnout, voting behavior in India.
4. Aware of the role of new media and technology in election campaign.
5. Develop an understanding of the required skills for data collection, research in election management.

COURSE : SEMESTER VI -: LEGISLATIVE PROCEDURES AND PRACTICES-7D (PAPER-II)

- Make familiar with legislative procedures and practices.
- Equip the students with the adequate skills of participation in deliberative processes and democratic decision making.
- Understand complex policy issues, draft new legislation, analyze ongoing bills, make speeches and floor statements.
- Provide skills to be part of a legislative support team and expose them to real life legislative work.
- Enhance understanding of procedures, practices, different committees and motions in the House.



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DEPARTMENT OF ENGLISH

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21

PROGRAMME: THREE-YEAR B.Com, B.A., and B.Sc General English

PROGRAMME STRUCTURE

First Semester Course I: English Praxis Course-I A Course in Listening and Grammar
Second Semester Course II: English Praxis Course-II A Course in Reading and Writing Skills
Third Semester Course III: English Praxis Course-III A Course in Conversational Skills

PROGRAMME OUTCOMES:

PO-1	Expose and empower undergraduate learners with the necessary communication skills in order to be successful in their life goals
PO-2	To acknowledge the importance of English as an essential foreign language and compete in the international scenario
PO-3	To equip learners with the critical thinking skills and soft skills required for their progress
PO-4	Use English in formal and informal styles

PROGRAMME SPECIFIC OUTCOMES:

PSO-1	Developing Listening skill, Reading skills, Study Skills and writing skills for professional requirements
PSO-2	Develop every day communication skills among the learners
PSO-3	Promote social and emotional skills.
PSO-4	Strengthening vocabulary and sentence structure
PSO-5	Underlining the importance of human values of empathy and service

I YEAR - B.Com(CA), B.A., & B.Sc., - I SEMESTER
PAPER 1 – A Course in Listening and Grammar

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	Learn basic grammar required to express himself/herself in English
CO-2	Acquire knowledge of Listening as a language skill
CO-3	Acquire knowledge of Listening as a language skill
CO-4	Understands the structure of a paragraph and acquires the ability to write simple paragraphs
CO-5	Demonstrate an understanding of the supra segmental features of speaking such as Pronunciation, Word Stress and Intonation
CO-6	Understands the importance of Soft Skills and acquires the ability to use soft skills in daily life
CO-7	Demonstrate an understanding of basic writing skills such as spelling and punctuation

I YEAR - B.Com., B.A., & B.Sc., (CA) - II SEMESTER
PAPER 2: A Course in Reading and Writing Skills

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	Understand the terms Skimming and Scanning, intensive reading and extensive reading and use them effectively
CO-2	Learn to be passionate and recognizes the need for social equality
CO-3	Develop writing skills- expand ideas, how to be concise and how to communicate in informal and official contexts
CO-4	Exposure to the strategies of note-making and note taking

II YEAR - B.Com (CA), B.A., & B.Sc - III SEMESTER

PAPER 3– A Course in Conversational Skills

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	practices social functions such as greetings, introductions, making requests, asking and giving information, agreeing and disagreeing
CO-2	Understands the components of an effective speech
CO-3	Builds up a repository of words for active usage
CO-4	Understands the meaning of leadership and the definition of an effective democracy



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DEPARTMENT OF TELUGU

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21

I YEAR – I SEMESTER

PAPER 1 – : General Telugu – I

COURSE OUTCOMES

బి.ఎ., బి.కా., బి.యస్.సి., తదితర ప్రోగ్రాములు

అంశం: జనరల్ తెలుగు

కోర్సు-1 : ప్రాచీన తెలుగు కవిత్వం

యూనిట్ల సంఖ్య: 5

అభ్యసన ఫలితాలు:-

పీరియడ్ల సంఖ్య: 60

ఈ కోర్సు విజయవంతంగా ముగించాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొందగలరు.

1. ప్రాచీన తెలుగుసాహిత్యం యొక్క ప్రాచీనతను, విశిష్టతను గుర్తిస్తారు. తెలుగుసాహిత్యంలో ఆదికవి నన్నయ కాలంనాటి భాషాసంస్కృతులను, ఇతిహాసకాలం నాటి రాజనీతి విషయాలపట్ల పరిజ్ఞానాన్ని సంపాదించగలరు.
2. శివకవుల కాలంనాటి మతపరిస్థితులను, భాషావిశేషాలను గ్రహిస్తారు. తెలుగు నుడికారం, సామెతలు, లోకోక్తులు మొదలైన భాషాంశాల పట్ల పరిజ్ఞానాన్ని పొందగలరు.
3. తిక్కన భారతంనాటి మత, ధార్మిక పరిస్థితులను, తిక్కన కవితాశిల్పాన్ని, నాటకీయతను అవగాహన చేసుకోగలరు.
4. ఎఱ్ఱన సూక్తివైచిత్ర్యాన్ని, ఇతిహాస కవిత్వంలోని విభిన్న రీతులపట్ల అభిరుచిని పొందగలరు. శ్రీనాథుని కాలం నాటి కవితావిశేషాలను, మొల్ల కవితా విశిష్టతను గుర్తించగలరు.

5. తెలుగు పద్యం స్వరూప స్వభావాలను, సాహిత్యాభిరుచిని పెంపొందించుకుంటారు. ప్రాచీన కావ్యభాషలోని వ్యాకరణాంశాలను అధ్యయనం చేయడం ద్వారా భాషాసామర్థ్యాన్ని, రచనల మెళకువలను గ్రహించగలరు.

I YEAR - II SEMESTER
PAPER 1 – : General Telugu – II

COURSE OUTCOMES:

ఏ., బి.కాం., బి.యస్.సి., తదితర ప్రోగ్రాములు అంశం: జనరల్ తెలుగు

సెమిస్టర్-2

కోర్సు-2 : ఆధునిక తెలుగు సాహిత్యం

యూనిట్ల సంఖ్య: 5

పీరియడ్ల సంఖ్య: 60

+ అభ్యసన ఫలితాలు:-

ఈ కోర్సు విజయవంతంగా ముగించాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొం 1. ఆంగ్లభాష ప్రభావం కారణంగా తెలుగులో వచ్చిన ఆధునిక సాహిత్యాన్ని, దాని విశిష్టతను గుర్తిస్తారు.

2. సమకాలీన ఆధునిక సాహిత్య ప్రక్రియలైన "వచన కవిత్వం, కథ, నవల, నాటకం, విమర్శలపై అవగాహన పొందుతారు.

3. భావకవిత, అభ్యుదయ కవితాలక్ష్యాలను గూర్చిన జ్ఞానాన్ని పొందుతారు. అస్తిత్వవాద ఉద్యమాలపుట్టుకను, ఆవశ్యకతను గుర్తిస్తారు.

4. కథాసాహిత్యం ద్వారా సామాజిక చైతన్యాన్ని పొందుతారు. సిద్ధాంతాల ద్వారా కాకుండా, వాస్తవ పరిస్థితులను తెలుసుకోవడం ద్వారా సిద్ధాంతాన్ని సమీక్షించగలరు.

5. ఆధునిక తెలుగు కల్పనా సాహిత్యం ద్వారా సామాజిక, సాంస్కృతిక, రాజకీయ చైతన్యాన్ని పొందుతారు.

II YEAR - III SEMESTER
PAPER 1 – : General Telugu – III

COURSE OUTCOMES:

బి.ఏ., బి.కాం., బి. యస్సి., తదితర ప్రోగ్రాములు

అంశం: జనరల్ తెలుగు సెమిస్టర్-3

కోర్సు-3 : సృజనాత్మక రచన

యూనిట్ల సంఖ్య: 5

పీరియడ్ల సంఖ్య: 60

+ అభ్యసన ఫలితాలు:-

ఈ కోర్సు విజయవంతంగా ముగించాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొందగలరు. 1. తెలుగు సాహిత్య అభ్యసన ద్వారా నేర్చుకున్న నైపుణ్యాలను, సృజనాత్మక నైపుణ్యాలుగా మార్చుకోగలరు.

2. విద్యార్థులు భాషాతత్వాన్ని, భాష యొక్క ఆవశ్యకతను, భాష యొక్క ప్రాధాన్యాన్ని గుర్తిస్తారు. మనిషి వ్యక్తిగత జీవనానికి, సామాజికవ్యవస్థ పటిష్ఠతకు భాష ప్రధానమని తెలుసుకుంటారు. తెలుగుభాషలోని కీలకాంశాలైన 'వర్ణం - పదం - వాక్యా'ల ప్రాధాన్యాన్ని గుర్తిస్తూ, వాగ్రూప- లిఖితరూప వ్యక్తీకరణ ద్వారా భాషానైపుణ్యాలను మెరుగుపరచుకోగలరు.

3. భాషానైపుణ్యాలను అలవరచుకోవడంతోపాటు వినియోగించడం నేర్చుకుంటారు. రచనా, భాషానైపుణ్యాలను సృజనాత్మక రూపంలో వ్యక్తీకరించగలరు.

4. ప్రాచీన పద్యరచనతో పాటు ఆధునిక కవిత, కథ, వ్యాసం, మొదలైన సాహిత్యప్రక్రియల నిర్మాణాలకు సంబంధించిన సిద్ధాంతవిషయాలను నేర్పడంతో పాటు వారిలో రచనా నైపుణ్యాలను పెంపొందించుకోగలరు.

5. సృజన రంగం, ప్రసారమాధ్యమ రంగాల్లో ఉపాధి అవకాశాలను అందిపుచ్చుకోగలరు.

6. అనువాద రంగంలో నైపుణ్యం సంపాదించగలరు.



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DEPARTMENT OF ENGLISH

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21

PROGRAMME: THREE-YEAR B.Com, B.A., and B.Sc General English

PROGRAMME STRUCTURE

First Semester Course I: English Praxis Course-I A Course in Listening and Grammar
Second Semester Course II: English Praxis Course-II A Course in Reading and Writing Skills
Third Semester Course III: English Praxis Course-III A Course in Conversational Skills

PROGRAMME OUTCOMES:

PO-1	Expose and empower undergraduate learners with the necessary communication skills in order to be successful in their life goals
PO-2	To acknowledge the importance of English as an essential foreign language and compete in the international scenario
PO-3	To equip learners with the critical thinking skills and soft skills required for their progress
PO-4	Use English in formal and informal styles

PROGRAMME SPECIFIC OUTCOMES:

PSO-1	Developing Listening skill, Reading skills, Study Skills and writing skills for professional requirements
PSO-2	Develop every day communication skills among the learners
PSO-3	Promote social and emotional skills.
PSO-4	Strengthening vocabulary and sentence structure
PSO-5	Underlining the importance of human values of empathy and service

I YEAR - B.Com(CA), B.A., & B.Sc., - I SEMESTER
PAPER 1 – A Course in Listening and Grammar

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	1. Learn basic grammar required to express himself/herself in English
CO-2	2. Acquire knowledge of Listening as a language skill
CO-3	3. Acquire knowledge of Listening as a language skill
CO-4	4. Understands the structure of a paragraph and acquires the ability to write simple paragraphs
CO-5	5. Demonstrate an understanding of the supra segmental features of speaking such as Pronunciation, Word Stress and Intonation
CO-6	6. Understands the importance of Soft Skills and acquires the ability to use soft skills in daily life
CO-7	7. Demonstrate an understanding of basic writing skills such as spelling and punctuation

I YEAR - B.Com., B.A., & B.Sc., (CA) - II SEMESTER
PAPER 2: A Course in Reading and Writing Skills

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	1. Understand the terms Skimming and Scanning, intensive reading and extensive reading and use them effectively
CO-2	2. Learn to be passionate and recognizes the need for social equality
CO-3	3. Develop writing skills- expand ideas, how to be concise and how to communicate in informal and official contexts
CO-4	4. Exposure to the strategies of note-making and note taking

II YEAR - B.Com (CA), B.A., & B.Sc - III SEMESTER
PAPER 3– A Course in Conversational Skills

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	practices social functions such as greetings, introductions, making requests, asking and giving information, agreeing and disagreeing
CO-2	Understands the components of an effective speech
CO-3	Builds up a repository of words for active usage
CO-4	Understands the meaning of leadership and the definition of an effective democracy



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DEPARTMENT OF HINDI

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21

I YEAR - I SEMESTER

PAPER 1 – HIN1004: General Hindi – I

COURSE OUTCOMES:

HIN1004: General Hindi – I

Prose : 1) GADYA SANDESH 2) KATHALOK ,Grammar, Translation & Letter writing

By the end of the course during the First semester, with 4 hours a week and 3 credits a Semester, students will be able to

- Develops the skills of Hindi language
- Expands the knowledge of vocabulary
- Analyze and apply critical thinking skills with reference to society
- Understand similarities between languages
- Analyze and know the modern Hindi prose and its critics
- Appreciate modern Hindi short stories
- Acquire grammar skills
- Practices drafting personal letters

I YEAR - II SEMESTER

PAPER 1 – HIN2004: General Hindi – II

COURSE OUTCOMES:

HIN2004: General Hindi – II

Prose :1) GADYA SANDESH 2) KATHALOK -Grammar, Translation & Letter writing

By the end of the course during the Second semester, with 4 hours a week and 3 credits a Semester, students will be able to

- providing
- quality education
- able to become a good officers , Research scholars, teachers, and artists.
- As the prescribed syllabus is Skill based students get proficiency in all skills like speaking, writing, understanding, and expressing.
- Appreciate Hindi Essays, Short Stories
- Acquire and demonstrate the advanced skills of letter writing.

II YEAR - III SEMESTER

PAPER 1 – HIN3004: General Hindi – III

COURSE OUTCOMES:

HIN3004: General Hindi – III

Kavya-Deep, History of Hindi literature, General Essay, Translation & Functional Hindi

By the end of the course during the Third semester, with 4 hours a week and 3 credits a Semester, students will be able to

- Acquires the knowledge of Hindi Literature, Poets and Poetry
- Develops the knowledge of history of Hindi literature
- Inculcates the habit of thinking on general issues through essays
- Translates Hindi to English and vice-versa
- Practices drafting of official letters



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DEPARTMENT OF HINDI

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21

I YEAR - I SEMESTER

PAPER 1 – HIN1004: General Hindi – I

COURSE OUTCOMES:

HIN1004: General Hindi – I

Prose : 1) GADYA SANDESH 2) KATHALOK ,Grammar, Translation & Letter writing

By the end of the course during the First semester, with 4 hours a week and 3 credits a Semester, students will be able to

- Develops the skills of Hindi language
- Expands the knowledge of vocabulary
- Analyze and apply critical thinking skills with reference to society
- Understand similarities between languages
- Analyze and know the modern Hindi prose and its critics
- Appreciate modern Hindi short stories
- Acquire grammar skills
- Practices drafting personal letters

I YEAR - II SEMESTER

PAPER 1 – HIN2004: General Hindi – II

COURSE OUTCOMES:

HIN2004: General Hindi – II

Prose :1) GADYA SANDESH 2) KATHALOK -Grammar, Translation & Letter writing

By the end of the course during the Second semester, with 4 hours a week and 3 credits a Semester, students will be able to

- providing
- quality education
- able to become a good officers , Research scholars, teachers, and artists.
- As the prescribed syllabus is Skill based students get proficiency in all skills like speaking, writing, understanding, and expressing.
- Appreciate Hindi Essays, Short Stories
- Acquire and demonstrate the advanced skills of letter writing.

II YEAR - III SEMESTER

PAPER 1 – HIN3004: General Hindi – III

COURSE OUTCOMES:

HIN3004: General Hindi – III

Kavya-Deep, History of Hindi literature, General Essay, Translation & Functional Hindi

By the end of the course during the Third semester, with 4 hours a week and 3 credits a Semester, students will be able to

- Acquires the knowledge of Hindi Literature, Poets and Poetry
- Develops the knowledge of history of Hindi literature
- Inculcates the habit of thinking on general issues through essays
- Translates Hindi to English and vice-versa
- Practices drafting of official letters



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DEPARTMENT OF COMMERCE

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2015-16

PROGRAMME: THREE-YEAR B.Com., GENERAL

PROGRAMME OUTCOMES

Completion of programme the student will equip the knowledge about

1. Fundamentals of accounting, Business Organization and Management, Business Economics, Business Statistics, Business Environment, Corporate Accounting, Marketing, Business Laws
2. Inculcate the student capability to words invention creativity in problem solving skills in business
3. Acquire knowledge with different issues of present changing business conditions.
4. Develop the student's thinking patterns in the matters of technical skills managerial qualities Equip the knowledge in the matters of management ,leadership, team work, with social responsibility

COURSE OUTCOMES:

S. No	Semester	Course Code	Course Name	Course Outcome	
1	I	BCO 1-SB	Financial Accounting	After the completion of the course, Students will be able to	
				CO-1	Identifies, business transactions, and also learns how to record the journal entries in the books of accounts.
				CO-2	Understands how to maintain business records as per business standards.
				CO-3	Able to know how to measure the profits of the business and financial strength by preparing profit and loss accounts and balance sheet.
				CO-4	Learns how to identify and rectify the errors in books of accounts.
				CO-5	Finally understand the Nature of the business concerns.
	I	BCO 1S - 2	Business Organization and Management	After the completion of the course, students will be able to	
				CO-1	Knows the different forms of business and its features, merits and demerits.
				CO-2	Equip the knowledge about the entrepreneur characteristics
				CO-3	Familiar with the company form of

2	I	BCO 1S -3	Business Economics		business and its technicalities
				CO-4	Understand the concept of Management and its different styles
				CO-5	Identify the working of various business organization patterns
				After the completion of the course, students will be able to	
				CO-1	Equip the knowledge of what is Business Economic in terms of various economic scholars' thoughts.
				CO-2	Understands the differences between micro and macro economics
				CO-3	Able to know what is Demand and its nature measurements, and practical implications.
	II	BCO 2S-1	Financial accounting-II	CO-4	Identifies the various markets and their nature and price determining techniques.
				CO-5	Familiar with the concept of National Income and its concepts with reference to Indian Economy.
				After the completion of the course, students will be able to	
				CO-1	Introduced with various deprecation techniques
				CO-2	Understands with accounting methods of Consignment, and Joint Ventures
				CO-3	Acquire the knowledge about the maintenance of various reserves by the business organizations
				CO-4	Able to know how to right the journals of bills of exchange
				CO-5	Understands how to ascertain the profitability and financial position of an enterprise with incomplete records
	II	BCO 2S-2	Business environment	After the completion of the course, students will be able to	
				CO-1	Understands about the various concepts of Business Environment
				CO-2	Equip the knowledge about the economic environment with reference to the Indian economy
				CO-3	Identify the social, political and legal environment's
				CO-4	Able to know what are the Economic policies and its importance
				CO-5	Familiar with Global economic environment
	II	BCO 2S-3	Business Economics-2	After the completion of the course, students will be able to	
				CO-1	Understand the techniques of minimization of cost and maximization of profits.
				CO-2	Familiar with the cost of production concepts

				CO-3	Posses the ability of knowing what is GDP and its various concepts
				CO-4	Learns about Liberalization, Privatization and Globalization concepts
				CO-5	Able to know the concept of International Trade and its nature
3	III	BCO 3S-1	Corporate accounting	After the completion of the course, students will be able to	
				CO-1	Equip the knowledge about shares and debentures and their issue and relating matters
				CO-2	Learns about the business goodwill and its various calculation methods
				CO-3	Also Learns how to calculate the value of shares.
				CO-4	Aware about the various provisions and sections of 2013 New Company Act particular section 8 of company act.
				CO-5	Learns how to prepare final accounts of company according to company act.
	III	BCO 3S-2	Business statistics	After the completion of the course, students will be able to	
				CO-1	To equip the basic knowledge and terminology of statistics
				CO-2	Learns different methods of measures of central tendencies.
				CO-3	Also learns how to solve different problems of Dispersion and skewness
				CO-4	Learns to different concepts of co-relations methods
				CO-5	Possess the ability of solving different problems of time series and index numbers.
	III	BCO 3S-3	Banking theory and practice	After the completion of the course, students will be able to	
				CO-1	Understand the nature of Banking system and its nature
				CO-2	Able to know the different types of banking methods
				CO-3	Understand the nature of development of banking Sector
				CO-4	Aware about the Customer and banker relations
				CO-5	Equip the knowledge of new developments in banking systems as collector and paying bankers
4	IV	BCO 4S-1	Accounting for Service Organizations	After the completion of the course, students will be able to	
				CO-1	Learn how the service organizations of sec. 8 of new companies act of 2013
				CO-2	Get awareness about the various procedures of electricity, life insurance accounting procedures
				CO-3	Understand the techniques of banking accounting procedures

				CO-4	Equip the knowledge of various banking regulating act of 1969
				CO-5	Finally able to know to prepare accounts of various service organizations.
	IV	BCO 4S-2	Business law	After the completion of the course, students will be able to	
				CO-1	Equip the knowledge about the various contract laws
				CO-2	Understands how void, voidable contracts
				CO-3	Learns rules about minor contracts
				CO-4	Aware about different cyber laws
				CO-5	Familiar with GST aspects
	IV	BCO 4S-3	Income tax	After the completion of the course, students will be able to	
				CO-1	Learns basic concepts and terms of Income tax act 1961
				CO-2	Understands how to calculate the income from various heads
				CO-3	Familiar with how to carry forward different losses
				CO-4	Equip the knowledge of different exemptions of business
				CO-5	Aware about clubbing of all types of income
	IV	FOUNDATIONAL COURSE	Entrepreneurship	After the completion of the course, students will be able to	
				CO-1	Aware about the entrepreneurship and types
				CO-2	Understand the importance of entrepreneurship in economic development
				CO-3	Familiar with various project developments appraisals and constructions
5	V	BCO 5S-1	Cost accounting	After the completion of the course, students will be able to	
				CO-1	Understands various cost components
				CO-2	Learns different methods of costing
				CO-3	Familiar with various cost parts
				CO-4	Equip the knowledge of importance of costing in pricing of product
				CO-5	Aware about different proformas about cost sheets.
	V	BCO 5S-2	Goods and service tax	After the completion of the course, students will be able to	
				CO-1	Familiar with the Fundamentals of Different concepts of GST
				CO-2	How to register a concern in GST systems
				CO-3	Familiar with differences between Transfer and Supply
				CO-4	Equip the knowledge of various exemptions to GST
				CO-5	Learns how to submit the GST returns

6	V	BCO 5S-3	Commercial geography	After the completion of the course, students will be able to	
				CO-1	Able to understand structure and physical features of the earth
				CO-2	Familiar with Agriculture system in India
				CO-3	Equip the knowledge of forestry and different acts of it
				CO-4	Learns about Mining and minerals in India
				CO-5	Aware about the various issue relating to protect the earth
	V	BCO 5S-4A	Central banking	After the completion of the course, students will be able to	
				CO-1	Learns about development of banking system in India
				CO-2	Familiar with structure and constitution of RBI
				CO-3	Equipped with the knowledge of different monetary measures of RBI
				CO-4	Able to understand controlling of inflation by RBI
				CO-5	Aware the knowledge of fraud checking measures of RBI
	V	BCO5S-4B	Rural and farm credit	After the completion of the course, students will be able to	
				CO-1	Understand the different forms of Farm and rural credit in India
				CO-2	Equip the knowledge of different problems of rural and farm credit
				CO-3	Aware about the concept of financial inclusion
				CO-4	Able to know different credit cards available to farmers in India
				CO-5	Learns to the functions of NABARD, PACS, DCCBS, and RRBs
	VI	BCO6S-1	Marketing	After the completion of the course, students will be able to	
				CO-1	Familiar with the different of Concepts
				CO-2	Learns about 4 P of marking and its importance's
				CO-3	Able to know the different channels of marketing
				CO-4	Understands different pricing techniques
				CO-5	Familiar with the regulating marketing in India
		BCO6S-2	Auditing	After the completion of the course, students will be able to	
				CO-1	Understand the different rules and regulating of auditing
				CO-2	Equip the knowledge of types of auditing
				CO-3	Learns to duties and responsibilities of auditor
				CO-4	Familiar with the ways and means of all forms business organizations auditing
				CO-5	Able to know how to evaluate the assets

					and liabilities of business
	VI	BCO6S-3	Management accounting	After the completion of the course, students will be able to	
				CO-1	Able to understand the different concepts of management accounting
				CO-2	Learns about the insights of working capital
				CO-3	Equip the knowledge of funds and cash flows statements
				CO-4	Familiar with various ratio techniques
				CO-5	Able to assess the financial strength and weakness of various business organizations.
	VI	BCO6S-5A	financial services	After the completion of the course, Students will be able to	
				CO-1	Understands different aspects of financial services
				CO-2	Familiar with the working of various segments of financial institutions
				CO-3	Learns to know the different functions of mutual funds, merchant banks
				CO-4	Able to know the importance of financial services to the economic development
				CO-5	Can assess the financial worthiness of various financial institutions
	VI	BCO 6S-5B	Marketing of financial services	After the completion of the course, Students will be able to	
				CO-1	Able to differentiate between goods and services
				CO-2	Understand the organization of marketing scenario in financial organization
				CO-3	Familiar with the customer loyalty and their importance in marketing of financial services
				CO-4	Understand the concepts of B2B marketing
				CO-5	Equip the knowledge of development of financial marketing in India
	VI	BCO6SP RJ	Project Work	After the completion of the course, Students will be able to	
				CO-1	Learns how to undertake a Project work
				CO-2	Familiar with the different projects works natures and its inputs
				CO-3	Understand the actually working of the financial organizations.
				CO-4	Equip the knowledge of data collection methods
				CO-5	Able to learn how to write project work report



GOVERNMENT DEGREE COLLEGE, CHEBROLE

Accredited by NAAC with 'B' Grade

Affiliated to Acharya Nagarjuna University

Guntur District, Andhra Pradesh, PIN 522 212

Phone No: 08644-254221, 254322 Email: jkc.chebrole@gmail.com

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DEPARTMENT OF COMPUTER APPLICATIONS

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2015-16

PROGRAMME: THREE-YEAR B.Com.,COMPUTER APPLICATIONS

PROGRAMME STRUCTURE

First Semester Course I: Computer Fundamentals and Photoshop	Second Semester Course II: Enterprise Resource Planning
Third Semester Course III: Office Automation Tools	Fourth Semester Course IV: Business Analytics
Fifth Semester Course V: Programming in C (Elective) Course VI: Database Management System (Elective) Course VII: Web Technology (Elective)	Sixth Semester Course VIII : Tally (Elective) Course IX : e-Commerce (Elective) Course X : PHP and MySQL (Elective)

PROGRAMME OUTCOMES:

PO-1	Students should possess the essential domain knowledge to conduct a business, accountancy along with problem-solving skills to build computer-based solutions for business problems.
PO-2	Students should be able to analyze and provide feasible solutions to the real-world business problems using their technical knowledge and implementation skills.
PO-3	Students should acquire the vital knowledge of programming, databases and web technology to tackle business problems effectively.
PO-4	Acquires the basic communication skills, employable skills and technical skills in addition to contemporary business knowledge to become career-ready.

PROGRAMME SPECIFIC OUTCOMES:

PSO-1	Acquire knowledge in Computer programming languages to solve essential business problems.
PSO-2	Implementing automated accounting practices and application of computer skills for effective conduct of business.

PSO-3	Acquires analytical and technical skills to analyze the business problems with ease and efficiency.
PSO-4	Propose feasible ideas and business solutions in accordance with the prevailing day-to-day problems.
PSO-5	Pursue higher education and could develop zeal to do subject-specific research.

I YEAR - B.Com (CA) - I SEMESTER
PAPER 1 - COMPUTER FUNDAMENTALS AND PHOTOSHOP

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	Bridge the fundamental concepts of computers with the present level of knowledge of the students.
CO-2	Acquaint with operating systems, programming languages, peripheral devices, networking, multimedia and internet.
CO-3	Gain expertise on how to use the basic tools of Adobe Photoshop to create and edit images.
CO-4	Use the skills learnt to create graphics for both the web and print media.

I YEAR - B.Com (CA) - II SEMESTER
PAPER 1 – ENTERPRISE RESOURCE PLANNING

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	Understand the importance of Enterprise software, and its role in integrating business functions
CO-2	Analyze the strategic options for ERP identification and adoption.
CO-3	Understand Enterprise Resource Planning architecture to effectively design ERP implementation methodologies.
CO-4	Create reengineered business processes for successful implementation of ERP.

II YEAR - B.Com (CA) - III SEMESTER
PAPER 1 - OFFICE AUTOMATION TOOLS

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	Understand the importance of Automation tools to prepare documents, spreadsheets, and small presentations.
CO-2	Prepare documents and project reports with ease.
CO-3	Acquire the knowledge about creation of spreadsheets embedded with formulas, macros, and to visualize the data for data analysis tasks.
CO-4	Create effective presentations to portray information for better understanding incorporating images, animations etc.

II YEAR - B.Com (CA) - IV SEMESTER
PAPER 1 - BUSINESS ANALYTICS

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	Understand and critically apply the concepts and methods of business analytics.
CO-2	Identify, model and solve decision problems in different settings.
CO-3	Interpret results/solutions and identify appropriate courses of action for a given managerial situation whether a problem or an opportunity.
CO-4	Create viable solutions to decision making problems.

III YEAR - B.Com (CA) - V SEMESTER
PAPER 1 - ELECTIVE - PROGRAMMING IN C

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	Acquire the basic knowledge on the need of programming languages and problem solving techniques.
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CO-2	To develop an in-depth understanding of functional and logical concepts of C Programming.
CO-3	Able to develop the required logic and algorithms for solving business problems.
CO-4	Should possess the ability to learn any new programming language in future at ease.

III YEAR - B.Com (CA) - V SEMESTER
PAPER 2 - ELECTIVE - DATABASE MANAGEMENT SYSTEM

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	Understand and evaluate the role of database management systems in information technology applications within organizations.
CO-2	Design and implement properly structured databases that match the standards in accordance with realistic constraints and conditions.
CO-3	Comprehend on how to use Structured Query Language (SQL) to define and manipulate data in a database system.
CO-4	Explain the process of Transaction management for successful implementation of business transactions.

III YEAR - B.Com (CA) - V SEMESTER
PAPER 3 - ELECTIVE - WEB TECHNOLOGY

COURSE OUTCOMES:

On successful completion of this course, the students would be able to

CO-1	Understand the Client-Server architecture and possess the essential knowledge to develop web applications.
CO-2	Understand and use the HTML tags to create adaptive web pages for web applications.
CO-3	Apply CSS to implement a variety of presentation effects to the web pages in a web application.
CO-4	Write client-side validations in Java Script and be able to define data for Web applications using XML.

III YEAR - B.Com (CA) – VI SEMESTER

PAPER 1 - ELECTIVE - TALLY

COURSE OUTCOMES:

On successful completion of this course, the students should be able to

CO-1	Understand and possess in-depth knowledge on how to computerize accounting transactions in Tally and find the financial result concern.
CO-2	To take appropriate financial decisions in a systematic manner.
CO-3	Prepare final accounts and other financial statements in Tally.
CO-4	Interpret the financial statements as well as evaluation of stock at the end.

III YEAR - B.Com (CA) - VI SEMESTER
PAPER 2 - ELECTIVE - E-COMMERCE

COURSE OUTCOMES:

On successful completion of this course, the students should be able to

CO-1	Understand the impact of Information and Communication Technologies and Internet for successful conduction of Business Operations.
CO-2	Acquire knowledge about various types of e-Commerce models to conduct their business online.
CO-3	Understand the importance, working and the necessity of electronic payment systems to transfer funds online in a secured manner.
CO-4	Take appropriate decisions related to e-Commerce in respect of laws, privacy and security.

III YEAR - B.Com (CA) - VI SEMESTER
PAPER 3 - ELECTIVE - PHP and MySQL

COURSE OUTCOMES:

On successful completion of this course, the students should be able to

CO-1	Understand the key elements of PHP, MySQL and should be able to explain the importance of PHP for web development.
CO-2	Analyze the fundamental structure of a PHP Web application and be able to create, install, compile and run a web application.

CO-3	Explain the working principle of a database, be able to develop one and know the process of using php MyAdmin to work with MySQL.
CO-4	Describe various methods of connecting to MySQL from PHP and also to connect other data sources such as SQL Server.



GOVERNMENT DEGREE COLLEGE, CHEBROLE, GUNTUR DISTRICT

(Re-accredited by NAAC as Grade ' B ' with CGPA 2.26)

Phone No: 08644-254221

PIN-522212

**DEPARTMENT OF HISTORY
UNDER CBCS FRAMEWORK
PROGRAMME: THREE-YEAR B.A. HISTORY
PROGRAM OUTCOME OF BACHLOR OF ARTS (B.A.)**

History students at Graduation that is B.A. Programme are expected to encourage with following quality which helps them in their future life to achieve the expected goals.

1. Acquire facts and Historian, history as Science and Arts.
2. Specialized of human values and making good citizens.
3. Responsible and dutiful citizen for the nation.
4. Critical thinking skills
5. To be able to communicate effectively in written, graphical & chronicle form.
6. Problem solving skills.
7. Quantitative, Reasoning Skills.

PROGRAM SPECIFIC OUTCOMES (B.A. HISTORY)

- PS01: Students will be able to demonstrate a breadth of training across historical time and space.
- PS02: Students will be able to develop an in-depth understanding of a field, theme or region.
- PS03: Students will be able to demonstrate an historical awareness of the diversity of the human experience across time and space (research papers)
- PS04: Students will be able to apply, assess and debate the major historical schools of thought, methodology and types of sources that historians use to make original arguments (research papers)
- PS05: Students will be able to formulate historical arguments and communicate those arguments in clear and persuasive prose that is Minds.
- PS06: Methodology – Heuristic Criticism – Synthesis – Exposition Errors of History – Objectivity in history.

COURSE OUTCOMES
PAPER-I
ANCIENT INDIAN HISTORY AND CULTURE
(FROM EARLIEST TIMES TO 600 A.D.)

1. The student understands the relations between Geography and History
2. Student can remember the life of early man through stone age culture.
3. Will be aware about the Indus Valley Civilization and Development.
4. Understands condition of 6th Century B.C and formation of Jainism and Buddhism.
5. Will know about the 16 Mahajapadhas and rise of Magadha it's importance.
6. Is aware of the administrative structures and Mouryan and Dhamma Policy of Ashoka.
7. Can analyze this Socio, Economic and Cultural conditions of Satavahanas and Kushanas.
8. Will understand the Socio, Economic, cultural, Science and Technological developments in Gupta period.
9. Importance of Geography and Chronicle to the history.

PAPER-II
EARLY MEDIEVAL INDIAN HISTORY AND CULTURE (600-1526 A.D.)

1. The student is able to identify the different style of architecture from Pallavas and Chalukyas overall outlook on South India.
2. Will be aware of the administrative structure of Cholas particular reference to the Village Administration.
3. Will know about the composition and function of Sultanate administrative structure of Delhi Sultanas period 1206 to 1526.
4. Comparative study for Indo Islamic Culture, heritage of religion.

PAPER-III
LATE MEDIVAL AND COLONIAL HISTORY OF INDIA
(1526-1857 A.D.)

1. The student understands Sharsha Administration & it's impact on Indian Administration to the coming generations.
2. Gains knowledge about the Marathas and their administration.
3. Understands the Administration, Economy, Society and Cultural Development under the Mughal Period Merits and Demerits.
4. Remember the policy of East India Company, their administration, How they exploit Indian economy and surprised Indian.

PAPER-IV
SOCIAL REFORM MEOWEMENT OF FREEDOM STRUGGLE
(1820-1947 A.D.)

1. Understand the cause of the revolts and peseants, tribes and sipoys in 19th century.
2. Learn about Socio, Religious movement in India. With special reference to Brahma Samaj, Arya Samaj, Ramakrishna Mission.
3. Can acquire the knowledge of different stage of Freedom Movement i.e.
 1. 1885 – 1905
 2. 1905 – 1919
 3. 1919 – 1947
4. Can identify the nature of Gandhi Movements. How far essential to the coming generation.
5. Observe the unification of India under the Leadership of SardharVallabhai Patel after Independence.

PAPER-V
HISTORY OF MODERN WORLD (1453-1821 A.D.)

- C01: Understand about the nature of Feudalism.
- C02: Compare the Medieval Europe and Modern Europe with special reference to Renaissance, Reformation and Counter Reformation.
- C03: Student gain knowledge about the cause and results of Americans, Revolution, Reformation & Counter Reformation.
- C04: Student should know about the French revolution and teaching of Philosophers, Diderot, Voltaire, Rousseau.

PAPER-VI
HISTORY AND CULTURE OF ANDHRA DESHA
(12TH – 19TH CENTURY A.D.)

- C01: The students understand the Social, Economic, Cultural conditions of 12th & 18th centuries special reference to Kakatiya & Reddy Kingdom.
- C02: Understand the unification movement of Italy & Germany in Europe.
- C03: The student analysis the unification movement in Europe.
- C04: Student is aware of causes & results of World Wars 1914-1919.

PAPER-VII
HISTORY OF MODERN WORLD (19TH CENTURY TO 1945 A.D.)

- C01: The student compare the condition of Industrial Revolution before & after in Europe as well as in India.
- C02: To understand the Unification Movement of Germany & Italy in Europe.
- C03: Student can analyze the Unification Movement in Europe.
- C04: Will be aware of the causes and results of World Wars.
- C05: Acquire knowledge and its functions, origin and establishment.

PAPER-VIII

POPULAR MOVEMENTS IN ANDHRA DESHA (1848-1956 A.D.)

- C01: The student understands the Socio, Religious movement in Andhra with special reference to Kandukuri Veeresalingam.
- C02: The student observes the Vandematharam movement with special reference to Kakinada conflicts.
- C03: Can compare the three phases of Freedom Struggle in Andhra
1) 1885 – 1905 2) 1905 – 1919 3) 1919 – 1947.
- C04: Student will be aware about the Gandhian period 1919 – 1947.
- C05: Can analyze the separation of Andhra State and Formation of Andhra Pradesh.

PAPER-IX

CONTEMPORARY HISTORY OF ANDHRA PRADESH

(1956-2014 A.D.)

- C01: Can understand the development of Andhra in various sectors after formation of Andhra Pradesh.
- C02: Will observe the cause and impact of Communist Nallabary.
- C03: Aware on the early trends towards Bifurcation of Andhra Pradesh.
- C04: The student can acquire the knowledge of the Bifurcation of Andhra Pradesh again and again.

PAPER-X

PROJECT WORK ON HISTORICAL ISSUES AND RELATED TOPICS

- C01: The student understands the basic concepts of research work.
- C02: The student identifies the various historical places in India and abroad.
- C03: Practical knowledge will be implied through the project work.
- C04: They learn how to collect primary and secondary data collection for project work.
- C05: Could pave the future of the student as a research scholar.



GOVERNMENT DEGREE COLLEGE, CHEBROLE

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Guntur District, Andhra Pradesh, PIN 522 212

DEPARTMENT OF ECONOMICS

PROGRAMME: THREE YEAR B.A ECONOMICS

PROGRAMME STRUCTURE:

Semester I - Micro Economics - Consumer Behaviour.

Semester II - Micro Economics - Production and Price Theory.

Semester III - Macro Economics - National Income, Employment and Money.

Semester IV - Banking and International Trade.

Semester V - Economic Development and Indian Economy.

Semester V - Paper VI - Indian and Andhra Pradesh Economy.

Semester VI - Paper - VII(A) (Elective Paper) - Agricultural Economics.

Paper -VIII-A1 Cluster Elective - Agribusiness Environment in AP.

Paper - VIII-A2 Cluster Elective - Agricultural Output Marketing.

Paper - VIII-A3 Cluster Elective - Agricultural Input Marketing.

COURSE OUTCOMES OF ECONOMICS:

- To induce critical thinking skills within the context of subject matter of economics.
- To demonstrate quantitative reasoning skills of collecting processing and interpreting data using statistical and mathematical methods and computer packages.
- To provide understanding of core economic terms, concepts, and theories.
- Students will be able to explain concepts, terminologies and theories in core branches of economics.
- Having critiquing in relation to subject matter of economics.
- Having attitude to observe marginal changes in economic magnitudes.
- Having skills to use quantitative data collections, analysis and interpretation using statistical and mathematical methods and computer packages.

PROGRAMME SPECIFIC OUTCOMES OF ECONOMICS:

- To understand the basic concept of economics.
- An ability to understand the economics theories and functioning of basic microeconomic and macroeconomic systems.
- To understand the economic way of thinking.
- The ability to write clearly expressing an economic point of view.
- To analyze economic behaviour in practice.
- To create students' ability to suggest various economic problems.

Semester I: - Micro Economics - Consumer Behaviour:

CO1: To ascertain the nature, definition and scope of Economics.

CO2: Understand and differentiate, the concepts of Micro & Macro, Static and Dynamic analysis, Normative and positive science, Inductive & Deductive methods, Partial and general Equilibrium.

CO3: To define the concept of utility and satisfaction, differentiate between marginal utility and total utility and to calculate the concept of marginal utility.

CO4: Explains the determinants of demand and supply, Measurement of Elasticity of Demand.

CO5: The students should be able to explain the idea of consumer behaviour using the ordinal approach.

Semester II - Micro Economics - Production and Price Theory:

CO1: To analyse the relationship between inputs used in production and the resulting outputs and costs.

CO2: To analyse different types of Market structures.

CO3: To analyse a firm's profit maximizing strategies under conditions of monopolistic competition.

CO4: To understand the concept of wage determination, collective bargaining, minimum wage.

CO5: To illustrate the meaning of interest and analyse the various theories of interest and rent.

Semester III - Macro Economics - National Income, Employment and Money:

CO1: To understand meaning, definition of Macro Economics - Importance of Macro Economics and its limitations.

CO2: To explain about the national income, calculation methods of national income, and concepts related to national income.

CO3: To interpret Classical theory of Employment, in terms of determining interaction between demand and supply of labour.

CO4: Understand the relationship between investment and savings, demonstrate investment multiplier.

CO5: To illustrate various version of quantity theory of money.

Semester IV - Banking and International Trade:

CO1: Students will be able to understand inflation, types of inflation and causes and effects of inflation measures to control inflation.

CO2: To give in-depth knowledge of Banking & Finance to the students of economics with practical inputs and prepares them as a responsible customer.

CO3: To envisage on NBFCs and defects of Indian money market.

CO4: This provides the information and functions of various financial institutions such as RBI, SEBI, LIC etc.

CO5: This explains about various economic policies like - Fiscal, Monetary and Exchange rate policies and importance of International Trade.

Semester V - Economic Development and Indian Economy:

CO1: Explains determining factors of growth approaches before classical growth theories and analysis of Classical growth theories.

CO2: To learn hardcore economic prescriptions to sustainable development related to the background like education, health, sanitation and infrastructural development, have found a place of pride in explaining the preference of various economies.

CO3: To understand the basic features of the Indian Economy in terms of Demographic features such as Concept of Population Dividend and Population Policy.

CO4: To expose students to national income accounting.

CO5: To acknowledge about the Economic reforms in terms of liberalization, privatization and globalization and also the concept of inclusive growth.

Semester V – Paper VI - Indian and Andhra Pradesh Economy:

CO1: The course will discuss changes in the trajectory of agricultural development in India since Independence. Students will be exposed to impacts of policies on the growth processes in Indian agriculture, Rural credit, Micro Finance, Self Help Groups (SHGs), Agricultural Price policy, concept of Crop Insurance, Food Security.

CO2: Equips the students to analyse the basic features of Indian economy and to have a clear understanding of the problems related to the Agriculture, Industry and other sectors of Indian Economy.

CO3: Students acquire the knowledge in Disinvestment in India, FEMA, Foreign direct investment, Services Sector in India.

CO4: Provides the students to know the role of Planning in India Economy and Objectives of Five-year plans.

CO5: Students can comprehend the basics of Andhra Pradesh Economy.

Semester VI - Paper - VII(A) (Elective Paper) Agricultural Economics:

CO1: Enables the students to understand the Nature and Scope of Agricultural Economics and also the Factors affecting agricultural development.

CO2: Students can exhibit the conceptual framework of production and product relationship in farm production.

CO3: To enable students on Growth and productivity trends in Indian agriculture with special reference to Andhra Pradesh

CO4: Provides the students to know the Systems of farming, farm size and productivity relationship in Indian agriculture with special reference to Andhra Pradesh

CO5: Students acquire the knowledge in Emerging trends in production, processing, marketing and exports; policy controls and regulations relating to industrial sector with specific reference to Agro-industries.

Semester VI - Paper - VIII-A1 Cluster Elective - Agribusiness Environment in AP:

CO1: Students gain the knowledge agriculture in development process in Andhra Pradesh vis-à-vis other developed states.

CO2: Facilitates the students to understand inter linkages of agricultural credit and other input markets and product markets.

CO3: Students learn the factors which are responsible for the emergence of Agribusiness sector in Andhra Pradesh.

CO4: Makes the student to have awareness on production and processing trends in exports and imports of major agricultural commodities in Andhra Pradesh.

CO5: To gain knowledge on the perception of Marketing policy, need and structure of APMC, Role of Farmer Groups in the marketing of Agricultural Produce.

Semester VI - Paper - VIII-A2 Cluster Elective - Agricultural Output Marketing

CO1: Students are able to understand Risks in Agriculture.

CO2: To impart knowledge on Weather Based Crop Insurance Model.

CO3: Students gain an understanding on Crop Insurance - Yield Index based Underwriting and Claims.

CO4: The students can acquire knowledge of different schemes on agriculture insurance.

Semester VI - Paper - VIII-A3 Cluster Elective - Agricultural Input Marketing:

CO1: To understand different marketing concepts and marketing systems in context of agricultural inputs.

CO2: To understand the Overview of Input Marketing.

CO3: To understand the concept of Seed Marketing.

CO4: To understand the concepts of Fertilizer Marketing and Plant Protection Chemicals.

CO5: Students able to understand the Farm Machinery and Implement.



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DEPARTMENT OF POLITICAL SCIENCE

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2015-16

PROGRAMME: THREE YEAR B.A POLITICAL SCIENCE

PROGRAMME STRUCTURE

First Semester -BASIC CONCEPTS OF POLITICAL SCIENCE	Second Semester -POLITICAL INSTITUTIONS
Third Semester -INDIAN CONSTITUTION	Fourth Semester -INDIAN POLITICAL PROCESS
Fifth Semester -INDIAN POLITICAL THOUGHT	Sixth Semester - WESTERN POLITICAL THOUGHT
Seventh Semester - PRINCIPLES OF PUBLIC ADMINISTRATION	

PROGRAMME OUTCOMES :

P01: Students can understand the world in which they are living.

P02: Students will have comprehensive knowledge and understanding on world wide issues.

P03: Students will be able to choose the best among the available opportunities in the political System

P04: Students will develop knowledge of theories , concepts and research methods in all social sciences.

P05: Political knowledge and consequences will be developed in students.

P06: Students will possess basic subject knowledge to compete the competitive examinations successfully .

PROGRAMME SPECIFIC OUTCOMES :

- Ps01:** Students should be able to thoroughly understand the study of political science.
- Ps02:** Students should be in a position to understand and follow changes in patterns of political structures.
- Ps03:** Students should have to concentrate on political knowledge to observe the field level circumstances.
- Ps04:** Students should be able to understand the cultural, social, political, economic and constitutional environment from the historical perspective of Indian administration .
- Ps05:** Students should understand the activity and dynamics of Indian government and politics .
- Ps06:** Students should be able to introduce their skills to work effectively in multi-disciplinary teams.
- Ps07:** Enabling students to develop a positive attitude towards political science as an interesting subject of study.

COURSE OUTCOMES :

COURSE : SEMESTER I – BASIC CONCEPTS OF POLITICAL SCIENCE

- C01 :** To explain the definition, nature, scope and importance of political science .
- C02 :** To analyze the approaches to the study of political science and elements of the state.
- C03 :** To highlight the concepts of nation, nationality and nationalism.
- C04 :** To specify the Importance of rights and citizenship .
- C05 :** To enlighten the concepts of Freedom, Equality and Justice.

COURSE: SEMESTER II- POLITICAL INSTITUTIONS

- C01 :** To understand the purpose of constitutional law, theory of separation of powers and basic features of parliamentary and presidential forms of government.
- C02 :** To analyze the comprehensive understanding and the basic features of federal form of government and unitary form of government .
- C03 :** To explain the features of democracy and models of democracy.

C04 : To study the nature ,role and functions of the judiciary and judicial review .

Course: SEMESTER III- INDIAN CONSTITUTION

C01 : To explain the Indian national movement on the constituent assembly and the nature and composition of the constituent assembly .

C02 : To understand the preamble and the salient features of the Indian constitution .

C03 : To acquaint with the fundamental rights and directive principles of state policy.

C04 : To deal with unitary and federal features of the Indian constitution and tension areas between the union and state governments.

C05 : To observe the working of the Indian constitution.

COURSE : SEMESTER IV- INDIAN POLITICAL PROCESS

C01 : To familiarize with the approaches to study the political process in India.

C02 : To deal with social structure and democratic process

C03 : To spotlight religion and politics

C04 : To understand party and electoral process in india

COURSE : SEMESTER V - INDIAN POLITICAL THOUGHT

C01 : To understand the contribution of ancient indian political thinkers to indian political thought

C02 : To familiarize the importance Renaissance thought

C03 : To deal with the early nationalism

C04 : To understand the religious nationalism

C05 : To explain the democratic egalitarianism

COURSE : SEMESTER VI - WESTERN POLITICAL THOUGHT

- C01** : To delineate the contribution of classical political thinkers to western political thinkers
- C02** : To cover the early medieval period to the beginning of the modern thought
- C03** : To highlight the importance liberal thought
- C04** : To understand the basic concept of liberal democratic thought
- C05** : To enlighten the philosophical idealism and its critique

COURSE : SEMESTER VII - PRINCIPLES OF PUBLIC ADMINISTRATION

- C01** : To familiarize with the meaning, nature and scope of public administration
- C02** : To discuss various Administrative Theories
- C03** : To deal with various Principles of Organization
- C04** : To cover the Structure of various Organizations
- C05** : To understand different Theories of Motivation.



GOVERNMENT DEGREE COLLEGE, CHEBROLE

Accredited by NAAC with 'B' Grade

Affiliated to Acharya Nagarjuna University

Guntur District, Andhra Pradesh, PIN 522 212

Phone No. 08644-254221 Email jkc.chebrole@gmail.com

DEPARTMENT OF MATHEMATICS

PROGRAMME OUTCOMES

PO1	Scientific temper will be developed in Students.
PO2	Students will acquire basic Practical skills & Technical knowledge along with domain knowledge of different subjects in the science stream.
PO3	Students will become employable; they will be eligible for career opportunities in Industry, or will be able to opt for entrepreneurship
PO4	Students will possess basic subject knowledge required for higher studies, professional And applied courses like Actuaries, Management Studies, Law etc
PO5	Students will be aware of and able to develop solution oriented approach towards Various Social and Environmental issues

PROGRAMME SPECIFIC OUTCOMES

PSO1	A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations , terminology
PSO2	A student should get adequate exposure to global and local concerns that explore them many aspects of mathematical sciences
PSO3	Student is equipped with mathematical modeling ability, problem solving skills, creative talent and power of communication necessary for various kinds of employment
PSO4	Student should 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.
PSO5	Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study

COURSE OUTCOMES

Course : Semester I - Ordinary Differential Equations

- CO1: To learn methods to solve linear differential equation with constant and variable coefficients.
- CO2: To learn methods for solving non-homogenous differential equation.
- CO3: To learn method of variation of parameter to solve linear differential equations.
- CO4: To solve first order and higher degree differential equations.
- CO5: To solve orthogonal trajectories

Course: Semester II – 3D Geometry

- CO1: To learn methods of finding various equations of planes and properties and get the knowledge of planes.
- CO2. To learn basic idea of lines, sphere and cones.
- CO3. To understand the properties of planes, lines, spheres and cones.
- CO4. To express the problems geometrically and then to get the solution.

Course : Semester III - Group Theory

- CO1: To learn fundamental properties and mathematical tools such as closure, identity, inverse and generators.
- CO2: To study algebraic structure 'Groups' in detail which is useful in study of Rings, Modules, Algebraic topology, Analysis
- CO3: To enhance abstract thinking of students.
- CO4: To learn to compare two different algebraic structures and study transfer of properties in- between these structures through homomorphism and isomorphism.

Course: Semester IV - Real Analysis

- CO1: To learn basic techniques and examples in analysis to be well prepared for courses like Topology, Measure theory and Functional analysis.
- CO2: To study various types of sets and relations, and concept of countable and uncountable..
- CO3: To study notion of lub and glb which helps to learn integrations which helps to find area under any functions.
- CO4: To apply notion of derivative in mean value theorem and also in higher order derivatives which arise in all applied sciences
- CO5 To study concept of sequence and series and hence find sum of infinite terms with Different Methods.
- CO6 To study theory and applications of Rolle's theorem, Cauchy mean value theorem and Lagrange's mean value theorem and Taylor series.
- CO7 To learn Riemann Integral and its properties in detail, leading to fundamental theorem of calculus and Mean value theorems.
- CO8: To study different tests for solving improper integrals of first and second kind.
- CO9: To study pointwise and uniform convergence of sequences and series of functions.

Course: Sem V - Linear Algebra

- CO1: To learn the importance of vector spaces, basis and dimension and linear transformation in Physics, Engineering, Social sciences and various branches of Mathematics.
- CO2: To learn to find Eigen values and Eigen vectors of a matrix which is used in the study of vibrations, chemical reactions and geometry.
- CO3: To learn Inner Product spaces and Gram-Schmidt process of orthogonalization. CO4: To get well equipped with Mathematical Modelling abilities.

Course : Semester V - Ring Theory

- CO1: To study the algebraic structure Ring in detail through various examples. CO2: To learn the construction of field of quotients of an integral domain. CO3: To study the Rings of polynomials and its factorization over a field.
- CO4: To study the notion of ideals and factor rings with examples.
- CO5: To study Unique Factorization domain, Euclidean Domain and related results

Course : Semester V - Vector Calculus

- CO1: Learn conceptual variations while advancing from one variable to several variables in calculus.
- CO2: Vector differentiation and problems.
- CO3: Inter-relationship amongst the line integral, double and triple integral formulations.
- CO4: Applications of multivariable calculus tools and importance of Green, Gauss and Stokes' theorems in other branches of mathematics.

Course: Semester VI - Numerical Analysis

- CO1: To learn to apply the various numerical techniques for solving real life problems.
- CO2: The problems which cannot be solved by usual formulae and methods can be Solved approximately by using numerical techniques.

- CO3: To fit curve to the data by using 5 different methods of interpolation as well as extrapolation.
- CO4: To find approximate solutions to difficult differential equations occurring in engineering sciences.

Course: Semester – VI Project

- CO1: Problem solving skills of students are enhanced.
- CO2: Theoretical concepts are strengthened by solving maximum no. of problems
- CO3: Due to one to one interaction with the teacher doubts of the students get cleared if any.
- CO4 : Students learn how to apply mathematical concepts to practical and real life problems.
- CO5: Interdisciplinary approach is developed.

Course: Semester VI – Laplace Transforms

- CO1: To learn the evaluation of Laplace transform of different types of functions, their derivatives and integrations.
- CO2: To learn the evaluation of Inverse Laplace transform of functions, their derivatives and integrations, and to learn application of Convolution theorem.
- CO3: To learn to apply Laplace Transform to solve Ordinary Differential equations with constant coefficients.
- CO4: To learn to evaluate the Fourier series of various even and odd functions

Course: Semester VI – Integral Transforms

- CO1: Know about piecewise continuous functions, Dirac delta function, Laplace transforms and its properties. CO2: Solve ordinary differential equations using Laplace transforms.
- CO3: Familiarise with Fourier transforms of functions, relation between Laplace and Fourier transforms.
- CO4: Explain Parseval's identity and applications of Fourier transforms to boundary value problems.
- CO5: Learn Fourier series, Bessel's inequality, term by term differentiation and integration of Fourier series.

Course: Semester VI – Advanced Numerical Analysis

- CO1: To learn Least Square procedures of fitting to straight line, power function, parabola and exponential function.
- CO2: To study concepts of numerical differentiation and working knowledge of problems with difference operators.
- CO3: To learn notions of numerical integration and various methods of numerical integration
- CO4: To solve system of linear equations by adopting numerical methods Gauss elimination, Gauss Jordan and LU decomposition methods.
- CO5: To solve differential equations which can't be solved analytically by Picards, Modified Euler's, R K method.



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DEPARTMENT OF PHYSICS

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2015-16

PROGRAMME: THREE-YEAR B.Sc., PHYSICS

PROGRAMME STRUCTURE

First Semester Course I: Mechanics Practical Course I (Lab-1)	Second Semester Course II: , Waves and, Oscillations Practical Course II (Lab-2)
Third Semester Course III: Wave Optics Practical Course III (Lab-3)	Fourth Semester Course IV: Heat and Thermodynamics Practical Course: IV (Lab- 4)
Fifth Semester Course V: Electricity, Magnetism and Electronics Course VI: Modern Physics Practical Courses V and VI: (Lab-5) and (Lab-6)	Sixth Semester Course VII C: Elective Renewable Energy Practical Course VII(C): (Lab-7)

PROGRAMME OUTCOMES:

PO-1	Scientific temper would be developed among science students studying Physics in particular and studying science in general.
PO-2	Students will acquire basic technical knowledge and Practical skills along with domain knowledge of different subjects in the science stream.
PO-3	Students will become employable; they will be eligible for career opportunities in Industry or will be able to opt for entrepreneurship.
PO-4	Students will be aware of and able to develop solution oriented approach towards various scientific issues in their day to day life.

PROGRAMME SPECIFIC OUTCOMES:

PSO-1	Understand various theoretical concepts related to physical and chemical properties of materials and the role of mathematics in dealing with them in qualitative and quantitative ways
PSO-2	Analyse the concepts of Physical and Mathematics and apply them in various situation and also in solving physics problems
PSO-3	Acquires the ability to interlink the skills and knowledge in Mathematics and Physics to develop an aptitude to address the problems in other branches of science
PSO-4	Acquires the skill needed to handle instruments and adopt lab procedures to study physical and chemical properties of materials
PSO-5	Motivate students towards higher education leading to research

I YEAR - B.Sc., PHYSICS - I SEMESTER - PAPER 1 - MECHANICS

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Understand Newton's laws of motion and motion of variable mass system and its application to rocket motion and the concepts of impact parameter, scattering cross Section.
CO-2	Apply the rotational kinematic relations, the principle and working of gyroscope and its applications and the precessional motion of a freely rotating symmetric top.
CO-3	Comprehend the general characteristics of central forces and the application of Kepler's laws to describe the motion of planets and satellite in circular orbit through the study of law of Gravitation.
CO-4	Understand postulates of Special theory of relativity and its consequences such as length contraction, time dilation, relativistic mass and mass-energy equivalence.

I YEAR - B.SC., PHYSICS - I SEMESTER - PRACTICAL PAPER 1: MECHANICS (LAB-1)

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Perform experiments on Properties of matter such as the determination of moduli of Elasticity, Surface tension of water , Coefficient of viscosity of a liquid , Moment of inertia of some regular bodies by different methods and compare the experimental values with the standard values

I YEAR - B.Sc., PHYSICS - II SEMESTER - PAPER 2 - WAVES AND OSCILLATIONS

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Examine phenomena of simple harmonic motion and the distinction between undamped, damped and forced oscillations and the concepts of resonance and quality factor with reference to damped harmonic oscillator.
CO-2	Appreciate the formulation of the problem of coupled oscillations and solve them to obtain normal modes of oscillation and their frequencies in simple mechanical Systems.
CO-3	Figure out the formation of harmonics and overtones in a stretched string and acquire the knowledge on Ultrasonic waves, their production and detection and their applications in different fields.

I YEAR - B.SC., PHYSICS - II SEMESTER - PRACTICAL PAPER 2: WAVES AND OSCILLATIONS (LAB-2)

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Know how to determine the acceleration due to gravity at a place using Compound pendulum and Simple pendulum.
CO-2	Notice the difference between flat resonance and sharp resonance in case of volume resonator and sonometer experiments respectively.
CO-3	Verify the laws of transverse vibrations in a stretched string using sonometer and comment on the relation between frequency, length and tension of a stretched string under vibration.
CO-4	Demonstrate the formation of stationary waves on a string in Melde's string experiment.

II YEAR - B.Sc., PHYSICS - III SEMESTER - PAPER 3 – WAVE OPTICS

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Explain about the different aberrations in lenses and discuss the methods of minimizing them.
CO-2	Understand the phenomenon of interference of light and its formation in (i) Fresnel Biprism and (ii) Thin films, Newton's rings and Michelson interferometer
CO-3	Distinguish between Fresnel's diffraction and Fraunhofer diffraction and observe the diffraction patterns in the case of single slit and the diffraction grating.
CO-4	Describe the construction and working of zone plate and make the comparison of zone plate with convex lens.
CO-5	Explain the various methods of production of plane, circularly and polarized light and their detection and the concept of optical activity.
CO-6	Comprehend the basic principle of laser, the working of He-Ne laser and Ruby lasers and their applications in different fields.
CO-7	Understand the basic principles of fiber-optic communication and explore the field of Holography and Nonlinear optics and their applications.

II YEAR - B.SC., PHYSICS - III SEMESTER - PRACTICAL PAPER 3: WAVE OPTICS (LAB-3)

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Gain hands-on experience of using various optical instruments like spectrometer, Polarimeter and making finer measurements of wavelength of light using Newton Rings experiment, diffraction grating etc.
CO-2	Understand the principle of working of polarimeter and the measurement of specific rotatory power of sugar solution
CO-3	Know the techniques involved in measuring the resolving power of telescope and dispersive power of the material of the prism.
CO-4	Be familiar with the determination of refractive index of liquid by Boy's method and the determination of thickness of a thin wire by wedge method.

II YEAR - B.Sc., PHYSICS - IV SEMESTER - PAPER 4 - HEAT AND THERMODYNAMICS

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Basic aspects of kinetic theory of gases, Maxwell-Boltzman distribution law, equipartition of energies, mean free path of molecular collisions and the transport phenomenon in ideal gases
CO-2	Gain knowledge on the basic concepts of thermodynamics, the first and the second law of thermodynamics, the basic principles of refrigeration, the concept of entropy, the thermodynamic potentials and their physical interpretations.
CO-3	Understand the working of Carnot's ideal heat engine, Carnot cycle and its efficiency
CO-4	Develop critical understanding of concept of Thermodynamic potentials, the formulation of Maxwell's equations and its applications.
CO-5	Differentiate between principles and methods to produce low temperature and liquefy air and also understand the practical applications of substances at low temperatures.
CO-6	Examine the nature of black body radiations and the basic theories.

II YEAR - B.SC., PHYSICS - IV SEMESTER - PRACTICAL PAPER 4: HEAT AND THERMODYNAMICS (LAB-4)

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Perform some basic experiments in thermal Physics, viz., determinations of Stefan's constant, coefficient of thermal conductivity, variation of thermo-emf of a thermocouple with temperature difference at its two junctions, calibration of a thermocouple and Specific heat of a liquid.

III YEAR - B.Sc., PHYSICS - V SEMESTER-PAPER 5 - ELECTRICITY, MAGNETISM AND ELECTRONICS

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Understand the Gauss law and its application to obtain electric field in different cases and formulate the relationship between electric displacement vector, electric polarization, Susceptibility, Permittivity and Dielectric constant.
CO-2	Distinguish between the magnetic effect of electric current and electromagnetic induction and apply the related laws in appropriate circumstances.
CO-3	Understand Biot and Savart's law and Ampere's circuital law to describe and explain the generation of magnetic fields by electrical currents.
CO-4	Develop an understanding on the unification of electric and magnetic fields and Maxwell's equations governing electromagnetic waves.
CO-5	Phenomenon of resonance in LCR AC-circuits, sharpness of resonance, Q factor, Power factor and the comparative study of series and parallel resonant circuits.
CO-6	Describe the operation of p-n junction diodes, zener diodes, light emitting diodes and transistors
CO-7	Understand the operation of basic logic gates and universal gates and their truth tables.

III YEAR - B.Sc., PHYSICS - V SEMESTER - PRACTICAL PAPER 5: ELECTRICITY, MAGNETISM AND ELECTRONICS (LAB-5)

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Measure the current sensitivity and figure of merit of a moving coil galvanometer.
CO-2	Observe the resonance condition in LCR series and parallel circuit
CO-3	Learn how a sonometer can be used to determine the frequency of AC-supply.
CO-4	Observe the variation of magnetic field along the axis of a circular coil carrying current using Stewart and Gee's apparatus.
CO-5	Understand the operation of PN junction diode, Zener diode and a transistor and their V-I characteristics.
CO-6	Construct the basic logic gates, half adder and full adder and verify their truth tables. Further, the student will understand how NAND and NOR gates can be used as universal building blocks.

III YEAR - B.Sc., PHYSICS - V SEMESTER-PAPER 6 - MODERN PHYSICS

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Develop an understanding on the concepts of Atomic and Modern Physics, basic elementary quantum mechanics and nuclear physics.
CO-2	Develop critical understanding of concept of Matter waves and Uncertainty principle.
CO-3	Get familiarized with the principles of quantum mechanics and the formulation of Schrodinger wave equation and its applications.
CO-4	Examine the basic properties of nuclei, characteristics of Nuclear forces, salient features of Nuclear models and different nuclear radiation detectors.
CO-5	Classify Elementary particles based on their mass, charge, spin, half life and interaction.
CO-6	Get familiarized with the nano materials, their unique properties and applications.
CO-7	Increase the awareness and appreciation of superconductors and their practical applications.

**III YEAR - B.Sc., PHYSICS - V SEMESTER - PRACTICAL PAPER 6: MODERN PHYSICS
(LAB-6)**

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Measure charge of an electron and e/m value of an electron by Thomson method.
CO-2	Understand how the Planck's constant can be determined using Photocell and LEDs.
CO-3	Determine the Energy gap of a semiconductor using thermistor and junction diode.

III YEAR - B.SC., PHYSICS - VI SEMESTER-PAPER 7(C) - RENEWABLE ENERGY

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Student can understand different forms of energy other than conventional energy.
CO-2	Environmental effects – Water pollution, Depletion of Ozone layer, Global warming etc.,
CO-3	Global Energy Scenario – Energy consumption in various sections, Power generation techniques
CO-4	Indian Energy Scenario – Energy resources available in India and Urban & Rural energy consumption
CO-5	Solar Energy – Applications like Solar Cooker, Solar Cell and advantages.
CO-6	Wind Energy – Conservation energy principles and advantages.
CO-7	Ocean Energy – Tidal Power generation and advantages.
CO-8	Hydrogen Energy – History of Hydrogen Energy and advantages.
CO-9	Bio Energy – Energy from Biomass and conversion of Biomass into fuels and advantages.

**III YEAR - B.Sc., PHYSICS - VI SEMESTER - PRACTICAL PAPER 7(C): RENEWABLE
ENERGY (LAB-7)**

COURSE OUTCOMES:

On successful completion of this course, the students will be able to understand	
CO-1	Performance testing of Solar Cooker
CO-2	Measurement of $v-i$ characteristics of solar cell.
CO-3	Characteristics of Wind

GOVERNMENT DEGREE COLLEGE:: CHEBROLE
DEPARTMENT OF CHEMISTRY
UNDER CBCS FRAMEWORK WITH EFFECT FROM 2015-16
PROGRAMME: THREE-YEAR BSC(MPC)

Programme Outcomes

Completion of programme the student will equip the knowledge about

1. To impart knowledge of general chemistry covering all aspects viz. inorganic, organic, physical and analytical chemistry
2. This create impact interest in post graduate in chemistry.
3. Besides also making them aware of the recent frontier area of knowledge
4. The tools, techniques, methodologies, needed for research in chemistry.
5. To provide laboratory experience to the students by performing volumetric analysis and qualitative analysis.

Programme specific outcomes:

1. To educate students on topics : periodic classification of elements and chemical bonding.
2. To educate students on basic organic chemistry of saturated and unsaturated hydrocarbons and introduction to different types of reactions.
3. To impart knowledge on states of matter – solid, liquid and gaseous states.
4. To educate students on the topics: chemical kinetics, photo chemistry and macro molecules
5. To provide laboratory experience on selected experiments related to topics taught in theory.
6. To provide opportunity and experience of presenting seminar on pre-allotted topics related to theory.

S.No	Semester	Course Code	Course Name	Course Outcome	
1	1	BSC-1	Inorganic&Organic chemistry	After the completion of the course, Students will be able to	
				CO-1	This course gives the students idea about the chemical reactions of inorganic and organic chemistry.
				CO-2	To make student understand different organic compounds with respect to the functional group.

				CO-3 To make student understanding the basic things for chemical reactions ie., electrophilic and nucleophilic, homolytic and heterolytic fission
				CO-4 Describe the trends in physical and chemical properties of group 13 to 17 elements.
				CO-5 Understand the applications of various inorganic substances in different industries.
2	2	BSC-2	Physical & General chemistry	After the completion of the course, students will be able to
				CO-1 After completion of degree students gained the theoretical as well as practical knowledge of handling chemicals
				CO-2 In majority of the daily routine things used for its surface utilisation and understanding the surface phenomena like adsorption, absorption and types of adsorption is important etc.
				CO-3 Students gained the knowledge about solid, liquid and gases
				CO-4 This course is very important for the students. This course gives student idea about the different bondings like covalent bond, ionic bond, coordination covalent bond.
				CO-5 Identify the different crystal systems and crystal structures
3	3	BSC -3	Inorganic and Organic chemistry	After the completion of the course, students will be able to
				CO-1 Describe the trends in the physical and chemical properties of D-block elements and F-block elements..
				CO-2 Study of D-block elements is useful in determination of

					coloured complexes.
				CO-3	List the important uses of metal carbonyls used in manufacturing of various products that are used in daily life..
				CO-4	Explain the uses and importance of alcohols and carbonyl compounds in industries and in daily life.
				CO-5	The practical knowledge is very essential for the identification of various ions and elements.
4	4	BSC-4	Spectroscopy & Physical chemistry	After the completion of the course, students will be able to	
				CO-1	Spectroscopy a part in 2BSc , semester-4 syllabus is very useful in industry ,research and development work for students.
				CO-2	On learning electro chemistry the student is able to generate electric current in an electro chemical cell.This knowledge is used in the making of batteries and fuel cells
				CO-3	The student has command on dilute solutions ,colligative properties ,phase diagrams and freezing mixtures.
				CO-4	Students gained knowledge about different spectroscopes . Like nmr , electronic and IR spectroscopy
				CO-5	Understanding the applications of beer-lamberts law for colorometry experiment.
5	5	BSC-5	Inorganic,physical&organic chemistry	After the completion of the course, students will be able to	
				CO-1	Coordination compounds are found in living systems and have many uses in the home,industry and medicine.
				CO-2	Coordinaion compounds

					play many role in transport of oxygen,electron transfer agent,as a catalyst and photosynthesis process.
				CO-3	Mixed metal complexes play vital role in various biological systems and in different field of chemistry and also play active role in the field of research.
				CO-4	Nitrogen compounds play a role in medicinal chemistry and also play active role in the field of research.
				CO-5	Understand the role of internal energy, enthalpy,entropy and state and illustrate laws of thermodynamics.
6	5	BSC-6	Inorganic,organic&physical chemistry	After the completion of the course, students will be able to	
				CO-1	The more advanced chemical and biochemical aspects and methods are all developed during the course..
				CO-2	The course will provide students very fundamental task perfomed by inorganic elements in living organisms.
				CO-3	Hetro cyclic compounds are presumably the largest class of organic compounds and wide applicability in pharmacy and agro chemicals.
				CO-4	In organic chemistry carbohydrates constitute one of the most important natural products by their study of classification,structural elucidation.
				CO-5	State and illustrate laws of photo chemistry and quantam yields.
7	6	BSC-	Environmental chemistry	After the completion of the course, students will be able to	

		7(B)		CO-1	Demonstrate knowledge of chemical and bio chemical principals of fundamental environmental process in air water and soil.
				CO-2	Describe water purification and waste water treatment process and the practical chemistry involved.
				CO-3	Describe causes and effects of environmental pollution by energy industry.
				CO-4	Discuss local and global environmental issues based on the knowledge gained throughout the course.
				CO-5	Reorganize different types of toxic substances and responses and analyse toxicological information.
8	6	BSC-8C1	Organic spectroscopic techniques	After the completion of the course, students will be able to	
				CO-1	Demonstrate a good understanding of the electromagnetic spectrum.
				CO-2	Describe the principals of spectroscopic methods such as NMR,IR and UV-VIS.
				CO-3	Identify the absorption frequencies of major functional groups.
				CO-4	Make students aware of the fine structure of ESR absorption.
9	6	BSC-8C2	Advanced organic reactions	CO-5	Learn electronic spectro of di atomic molecules born-oppenheimer approximation.
				After the completion of the course, students will be able to	
				CO-1	Identify and name important organic reactions.
				CO-2	Explain in detail the outcome of organic reactions,also in terms of stereo selectivity.

				CO-3	Plan and evaluate multi step organic reaction sequences using basic retro synthetic analysis
				CO-4	Describe the principles of protecting groups like protection of alcohols and diols, carboxylic acids and amines.
				CO-5	Understand the basis of photosynthetic reactions.
10	6	BSC-8C3	Pharmaceutical and medicinal chemistry	After the completion of the course, students will be able to	
				CO-1	Defination, clssification of the drugs with examples and structures.
				CO-2	Explain the drugs used for various infections diseases caused pathogens.
				CO-3	Explain therapeutic uses of drugs and specific side effect of drug substances.
				CO-4	Describe the chemical degradation of penicillins .
				CO-5	Explain the classification of anti malaria drugs.



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DEPARTMENT OF COMPUTER SCIENCE UNDER CBCS FRAMEWORK WITH EFFECT FROM 2015-2016 PROGRAMME: THREE - YEAR B.Sc Computer Science

PROGRAMME STRUCTURE

First Semester Course I: Computer fundamentals and Photoshop	Second Semester Course II: Programming in C
Third Semester Course III: Object-oriented programming using Java	Fourth Semester Course IV: Data Structures
Fifth Semester Course V: Database Management System	Sixth Semester Course VI: Software Engineering Elective – I A: Operating Systems B: Computer Networks C: Web Technologies

PROGRAMME OUTCOMES (POs):

- The B.Sc Computer Science helps to develop a widely applicable skill set in computing with strong programming and mathematics skills, as well as wide ranging skills in project management, effective presentations and teamwork.
- Graduate with a portfolio of work fit to present to potential employers.
- Depending on the chosen pathway, you can focus on particular areas of interest such as machine learning, web development, data science and video games.
- The explosive and ever-growing use of technology in business and commerce means that there's a whole range of different career possibilities for computing graduates.
- In terms of job opportunities and salaries, the IT sector is well ahead of most other industrial and commercial sectors.

COURSE 1: COMPUTER FUNDAMENTALS AND PHOTOSHOP

COURSE OUTCOMES:

After the successful completion of course the student should have

- Thorough knowledge on computer fundamentals.
- Photoshop's from the practical to the painterly artistic

- Good understanding on how Photoshop will help you create your own successful images.

COURSE 2: PROGRAMMING IN C

COURSE OUTCOMES:

By the completion of the course the graduate should be able to –

- Appreciate and understand the working of a digital computer.
- Analyze a given problem and develop an algorithm to solve the problem.
- Improve upon a solution to a problem.
- Use the 'C' language constructs in the right way.
- Design, develop and test programs written in 'C'.

COURSE 3: OBJECT- ORIENTED PROGRAMMING USING JAVA

COURSE OUTCOMES

By the completion of the course the graduate shall be able to-

- Understand the concept and underlying principles of Object-Oriented Programming
- Understand how object-oriented concepts are incorporated into the Java programming language.
- Develop problem-solving and programming skills using OOP concept.
- Develop the ability to solve real-world problems through software development. in high-level programming language like Java.
- Develop efficient Java applets and applications.

COURSE 4: DATA STRUCTURES

COURSE OUTCOMES

By the completion of the course the graduate shall be able to-

- Describe how arrays, records, linked structures, stacks, queues, trees, and graphs are represented in memory and used by algorithms.
- Write programs that use arrays, records, linked structures, stacks, queues, trees, and graphs.
- Demonstrate different methods for traversing trees.
- Compare alternative implementations of data structures with respect to performance.
- Describe the concept of recursion, give examples of its use, describe how it can be implemented using a stack.
- Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing.

COURSE 5: DATABASE MANAGEMENT SYSTEM

COURSE OUTCOMES

By the completion of the course the graduate shall be able to –

- Design and model the data in database.
- Store and retrieve the data stored in the database.

COURSE 5: SOFTWARE ENGINEERING

COURSE OUTCOMES

By the completion of the course the graduate shall be able to –

- Gather and specify requirements of the software projects.
- Ability to analyze software requirements with existing tools.
- Able to differentiate different testing methodologies.
- Able to understand and apply the basic project management practices in real life projects.
- Ability to work in a team as well as independently on software projects.

COURSE 6: ELECTIVE – I

A: OPERATING SYSTEMS

COURSE OUTCOMES

By the completion of the course the graduate shall be able to –

- Understand the basic concepts and functionality of an Operating System.
- Explain what a process is and how processes are managed in an Operating System.
- Compare and contrast various memory management schemes.
- Analyze various CPU Scheduling algorithms.
- Understand deadlock, prevention and avoidance algorithms.

B : COMPUTER NETWORKS

COURSE OUTCOMES

By the completion of the course the graduate shall be able to –

- Explain what a network is, hardware components to set up a network, transmission media and about different types of networks.

- Narrate about the Network Reference Models such as OSI and TCP/IP and functions of each layer in these models.
- Elucidate about the protocols used at each layer detailing their importance and uses.

C: WEB TECHNOLOGIES

COURSE OUTCOMES

By the completion of the course the graduate shall be able to –

- To understand the web architecture and web services.
- To design interactive web pages using HTML and Style sheets.
- To study the framework and building blocks of .NET Integrated Development Environment.
- To provide solutions by identifying and formulating IT related problems.