

# **SPACES DEGREE COLLEGE, PAYAKARAOPETA**

**NAAC – SSR CYCLE –I**

## **Supporting document for 2.6.1**

**❖ Course Outcomes (COs)**



Payakaraopeta-531126. Andhra Pradesh

**SPACES DEGREE COLLEGE**  
**(Affiliated to Andhra University)**  
**(Under the Management of Sri Prakash Educational Society)**

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**Department of Biochemistry**


Bachelor of Science

APSCHE, Revised Syllabus of Biochemistry under CBCS Framework w.e.f 2020-21

**Course Out Comes (COs) for Biochemistry**

Code	Title of the paper	Outcomes
Course- I (THEORY)	Biomolecules	CO 1 :The student gains knowledge in the chemistry of biomolecules such as water, carbohydrates, lipids, proteins and nucleicacids, which make up all the living organisms including humans. CO2:This will enable the student to understand the importance of these biomolecules in living organisms and effects of their alterations in diseases occurring in plants, animals and humans. CO3:Study of structure and classification of biomolecules CO4:Importance of water and its biological role CO5:Classifi cation of biomolecules.
Course-I (Practical )	Qualitative Analysis	CO1:The practicals will give the expertise to the student for analysis of any biological or non biological sample for identification of its chemical composition
Course-2 (TH)	Analytical techniques	CO1:The student will learn the various analytical techniques and their applications in separation and isolation of cells and tissues for studying their functional abnormalities CO2: The knowledge in the analytical techniques will enable the student for isolation ,purification and chemical characterization of compounds from plants and microbes which will have <b>medical applications</b> <b>CO3:commercial importance of biomolecules</b>
Course.2 (Pr )	Biochemical Techniques	CO1:The practicals will provide the expertise to the student for quantification of electrolytes and other metal ions, hormones and identification of bacteria. CO2:The expertise gained by the student in this course can be useful in food industries ,pharma industries. clinical and microbiological lab
Course- 3 (TH )	Enzymology, Bioenergetics and Intermediary metabolism	CO1:The student will get knowledge in enzymes, their physiological importance and other applications. CO2: The ability in classifying Enzymes.Understand the mechanism of



  
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		<p>catalysis employed by the most well characterized enzymes Identify the methods of enzyme purification.</p> <p>CO3: Apply the knowledge of immobilized systems and application of enzymes to industrial and clinical processes. Describe the chemical nature of enzymes and their functions in biochemical reactions.</p> <p>CO4: Explain how the enzyme activity is regulated and affected by temperature ,pH and concentration. Explain enzyme function with reference to the lock and key , induced fit models. Co5: Explain the roles of enzymes inhibitors, activators and coenzymes. Recognize enzyme specificity, allosteric enzymes, km. Express the important coenzymes and the groups they transfer.</p> <p>CO6: Describe what happens in citric acid cycle, ETC, oxidative phosphorylation and explain the role of each process in energy production.</p> <p>CO7: The student will know how the nutrients such as carbohydrates- lipids and Proteins get metabolized for the purpose of energy and other physiological functions in the body. This will Enable the student to understand the patho-physiology of metabolic diseases such as diabetes, atherosclerosis etc. which occur due to alterations in metabolisms.</p> <p>CO8: Explain and give examples of the strategies' of metabolism, emphasizing role of ATP coupled reaction.</p> <p>CO9: Define catabolism , anabolism and which type of reactions involved</p>
Course-3 (Pr)	Quantitative Analysis	<p>CO1: The practicals will provide the expertise for quantification of enzymes' activities, glucose, proteins and lipid levels in blood which will have clinical applications.</p> <p>CO2: Hands on experience in estimating the quantitative analysis of Biomolecules like protein, carbohydrates and nucleic acids.</p>
Course-4 (TH)	Physiology, Nutritional and Clinical Biochemistry	<p>CO1: The student will get knowledge in the different physiological systems and their functions in the human body. CO2: This course will also provide knowledge in hormones, their functions and the diseases occurring due to alterations in the levels of hormones.</p> <p>CO3: By studying this course the student will know the nutritional importance of proteins, carbohydrates, lipids, vitamins and minerals.</p> <p>CO4: LFT tests and kidney function tests</p> <p>COS: By studying blood, its composition</p>



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		and its functions the student will understand the importance of blood.
Course-4 (Pr )	Nutritional and Clinical Biochemistry	CO1: Clinical biochemistry unit along with practicals will enable the student to do diagnostic tests for liver diseases, Gastro intestinal diseases, renal diseases and nutritional deficiencies. Conduct experiments designed for study of nutritional biochemistry
Course -5 (Th)	<b>Microbiology, Immunology and Molecular biology</b>	CO 1: This course will enable the student to know various microbes such as bacteria, fungi and viruses, their structures and other properties and diseases caused by them. The student will also get knowledge in their commercial applications by making use of their beneficial effects such as fermentation in alcohol production, nitrogen fixation in agriculture etc. CO 2: The student will also get knowledge in immune system, vaccines and also understand the pathogenesis of auto immune diseases and immune deficiency diseases. CO 3: This course will provide knowledge and expertise in molecular biology such as genes, their structure and importance. CO 5: This will also enable the student to know the applications of PCR in cloning and diagnosis of genetic and viral diseases.
Course 5 (Pra)	<b><u>Microbiology and immunology</u></b>	CO 1 : The practical will provide the expertise to the student to work in microbiology laboratory, food and pharma industries, and biotech companies for production of vaccines and other life saving drugs.
Course 6A ( Th)	Clinical Biochemistry	CO-1. Clinical biochemistry unit along with practicals will enable the student to gain knowledge about clinical laboratories and diagnostic laboratories. CO-2. Clinical biochemistry unit along with practicals will enable the student to



  
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		do diagnostic tests for liver diseases, Gastro intestinal diseases, renal diseases
Course 6A ( Pr)	Clinical Biochemistry	CO1: Clinical biochemistry unit along with practicals will enable the student to establish clinical laboratories and diagnostic tests . CO 2: It will enable the student to do diagnostic tests for liver diseases, Gastro intestinal diseases, renal diseases
Course 7A(Th)	Haematological and Immunological Techniques	CO-1. This unit along with practicals will enable the student to gain knowledge about clinical laboratories and diagnostic tests for different infectious , immune related diseases. CO-2. Students will learn how to do diagnostic tests for virus, bacteria and fungal infections and other Immune Techniques.
Course 7A (Pr)	Haematological and Immunological Techniques	CO 1: Practical will enable the student to establish clinical laboratories and diagnostic tests for different infectious diseases. CO-2. Student cando diagnostic tests for virus, bacteria and fungal infections and immune techniques



  
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**SEMESTER -1**  
**COURSE NAME: BIOMOLECULES AND ANALYTICAL TECHNIQUES (THEORY)**  
**COURSE CREDITS: 4**

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**COURSE OBJECTIVES:**

To enable the students to-

Comprehend the structure, properties and functions of biomolecules.

Get an insight in to the structure and functions of nucleic acids, vitamins and bio-energetics.

Expertise in characterization of biomolecules using analytical techniques.

Attain the knowledge on spectral analysis of biomolecules, Microscopy and Radio activity.

Understanding the basic concepts of Statistics.

**COURSE OUTCOMES:**

Students will get-

**CO 1:** Be aware of structure and properties of carbohydrates, amino acids, proteins and lipids.

**CO 2:** Be familiarized with DNA and RNA; and have insight into glucose metabolism.

**CO 3:** Be acquainted with different methods in centrifugation, Chromatography & Electrophoresis.

**CO 4:** Be proficient in concepts of Spectroscopy, Microscopy and Radioactivity

**CO 5:** Acquire knowledge on concepts of Biostatistics



  
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**SEMESTER-2**  
**COURSE NAME: MICROBIOLOGY, CELL BIOLOGY AND MOLECULAR BIOLOGY (Theory)**  
**COURSE CREDITS: 3**

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**COURSE OBJECTIVES:**

To enable students to

- Comprehend the historical perspective of Microbiology
- Be an expertise in techniques of studying and culturing of microorganisms.
- Get knowledge on classification microbes ; Structure and reproduction of various plant, animal and bacterial viruses
- Understand the structure and functions of cellular organelles and cell division
- Understand the organization of and function of DNA and RNA at molecular level
- Comprehend the concepts of gene expression and regulation of gene expression.

**COURSE OUTCOMES:**

Students will get

**CO 1:** Have insight into microbial world and the ultra structure and physiology of microbes, versatile knowledge in Bergey's manual of classification.

**CO 2:** Strong intention will be developed in culturing various microorganisms. Thorough knowledge on structure and replication of viruses and their pathogenicity. Handle the septic and unhygienic conditions with a variety of sterilization techniques.

**CO 3:** Be acquainting with the ultra structure of cell organelles, cell cycle and cell division.

**CO 4:** Have a thorough knowledge of genome organization, DNA replication, DNA damage & repair and regulation of gene expression.

**CO 5:** Will be introduced to mechanism of DNA transcription and protein synthesis in both prokaryotes and eukaryotes.



  
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**SEMESTER 2**  
**COURSE NAME: MICROBIOLOGY, CELL BIOLOGY AND MOLECULAR BIOLOGY (Practical)**  
**COURSE CREDITS: 1**

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**COURSE OBJECTIVES:**

To enable the students to

- Acquire knowledge in usage of various instruments in microbiology laboratory
- Attain comprehensive knowledge on sterilization.
- Be able to distinguish and identify the microbes by various techniques.
- Be an expert in pure culture techniques and identification of cell division stages
- Able to isolate microbe genetic material.

**COURSE OUT COMES:**

Students will get

**CO 1:** Hands on expertise on various instruments

**CO 2:** Be able to design various sterilization methods

**CO 3:** Be skilful in characterization of microbes.

**CO 4:** Be acquaint on isolation and maintenance of pure cultures, able to distinguish various cell division stages

**CO 5:** Be expert in extraction and quantification of nucleic acids.



  
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**SEMESTER -3**  
**COURSE NAME: IMMUNOLOGY AND r DNA TECHNOLOGY (Theory)**  
**COURSE CREDITS: 4**

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**COURSE OBJECTIVES:**

**To enable the students to**

- Acquire knowledge in fundamentals of immunology like antigen, antibody, types of immunity, cells of immune system and organs of immune system
- Attain comprehensive knowledge on vaccines, types of vaccines, hybridoma technology, Ag-Ab reactions, hyper sensitivity and auto immunity.
- Learn various tools and techniques in r DNA technology. Isolation of gene, vectors and gene sequencing methods.
- Able to understand construction of r DNA, applications of r DNA technology in agriculture and medicine.
- Acquire knowledge on basic concepts in Biostatistics.

**COURSE OUTCOMES:**

**Students will get**

**CO 1:** Have an insight in basic aspects of immune system and immune response.

**CO 2:** Understand about different types vaccines currently in use, various allergy reactions and well versed with the concept of Immune diagnostics and auto Immunity.

**CO 3:** Accustomed with the tools and techniques of genetic engineering, molecular cloning and expression vectors. These powerful techniques allow the researcher to manipulate the DNA.

**CO 4:** Gain knowledge about importance of r DNA technology in agriculture and medicine.

**CO 5:** Learn about different types biological data bases and nucleotide and protein blast analysis by various software tools.



  
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**SEMESTER- 3**  
**COURSE NAME: IMMUNOLOGY AND r DNA TECHNOLOGY LAB (Practical)**  
**COURSE CREDITS: 1**

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**COURSE OBJECTIVES:**

**To enable the students to:**

- Comprehend the concepts of immunodiagnostic tests.
- Enable the students to learn the techniques of Genetic engineering
- Acquire the knowledge on analysis of genetic material
- Strengthen the theoretical knowledge on certain concepts like organs of immune system, PCR and blotting techniques.

**COURSE OUT COMES:**

**Students will**

**CO 1:** Be expertise in analysing the clinical samples through immunodiagnostic methods.

**CO 2:** Capable to optimizing the protocols for analysing the DNA samples.

**CO 3:** Understand the theoretical concepts in multiplication of DNA by PCR, production of antibodies, Lymphoid organs and blotting techniques.

**CO 4:** To learn about production of antibodies used to eliminate antigens or pathogens.

**CO 5:** To understand the concepts of Bioinformatics.



  
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**SEMESTER – 4**  
**COURSE NAME: PLANT AND ANIMAL BIOTECHNOLOGY (Theory)**  
**COURSE CREDITS: 4**

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**COURSE OBJECTIVES:**

**To enable the students to**

- Acquire knowledge about plant tissue culture and preparation of culture medium.
- Understand various laboratory protocols for cultivation of plant cells
- Acquaint in various gene transfer mechanisms.
- Study animal biotechnology which includes Artificial insemination, invitro fertilization and embryo transfer mechanisms
- Aware of Bio ethics, bio-safety guidelines and Intellectual property rights.

**COURSE OUTCOMES:**

**Students will get**

**CO 1:** Capable to prepare different types of nutrient media and able to culture plant cells and tissues in laboratory.

**CO 2:** Be abundant in producing transgenic plants

**CO 3:** Able to evaluate animal culture media constituents and their role in the culture and maintenance of animal cells and preservation.

**CO 4:** Familiarize with invitro fertilization with regard to transgenic animal production.

**CO 5:** awareness about Bio ethics, bio-safety guide lines and IPR issues.



  
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**SEMESTER -4**  
**COURSE NAME: PLANT AND ANIMAL BIOTECHNOLOGY (Practical)**  
**COURSE CREDITS: 1**

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**COURSE OBJECTIVES:**

**To enable the students to**

- Be proficient in designing protocols for media preparation.
- To acquire the techniques and inoculation methods in plant tissue culture.
- Be skilful in protocols for preservation of tissue culture plants.
- Understand the concepts of animal cell culture.
- Attain knowledge about ELISA.

**COURSE OUTCOMES:**

**Students will get**

**CO 1:** Be expertise in formulating the concentrations of tissue culture media constituents.

**CO 2:** capable of initiating and maintaining callus from different plant explants.

**CO 3:** Be skilled in animal tissue culture methods.

**CO 4:** Be an expert i aseptic seedling culture techniques.

**CO 5:** Aware of ELISA technique.



  
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**SEMESTER -4**  
**COURSE NAME: ENVIRONMENTAL AND INDUSTRIAL BIOTECHNOLOGY(Theory)**  
**COURSE CREDITS: 4**

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**COURSE OBJECTIVES:**

**To enable the students to**

- Understand the role of biotechnology in Ecology
- To know the use of microbes in processing the waste water treatment
- Understand the role of Biotechnology in the environment such as Bioremediation
- Attain knowledge in Bio-fuels and microbes involved in vermiculture and Bio fertilizers.
- Know the use of microbes in industrial fermentations
- Know the use of microbes in the production of imp compounds.

**COURSE OUTCOMES:**

**Students will get**

**CO 1:** Acquire knowledge about the environmental pollution, types pollution, Biotrickling filters, Water pollution and management, Microbiology of waste water treatment.

**CO 2:** Have knowledge about Bioremediation, Bio degradation – Concepts & Principles.

**CO 3:** Know about bio-fuels- biogas, microbes involved in biogas production, factors affecting biogas production, Bio fertilizers and vermin culture.

**CO 4:** Know about the basic principles of industrial fermentation

**CO 5:** Attain knowledge about commercial production of microbial products.



  
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**SEMESTER-4**  
**COURSE NAME: ENVIRONMENTAL & INDUSTRIAL BIOTECHNOLOGY (Practical)**  
**COURSE CREDITS: 1**

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**COURSE OBJECTIVES:**

**To enable the students to**

- Gain knowledge about purity of water.
- Know about BOD and COD of waste water.
- Understand the production of enzymes and alcohol by microorganisms.
- Understand the titrimetric analysis of citric acid.

**COURSE OUTCOMES:**

**Students will get**

**CO 1:** Able to determine waste water treatment.

**CO 2:** Able to determine Hardness and alkalinity of water.

**CO 3:** Able to find out Dissolved oxygen and BOD of water sample.

**CO 4:** Able to isolate industrially useful microbes from the soil.

**CO5:** Able to produce microbial products by fermentation.



  
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**SEMESTER-5**  
**COURSE NAME: ORGANIC FARMING (Theory)**  
**COURSE CREDITS: 4**

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**COURSE OUTCOMES:**

- CO 1:** Understand the soil profile and nutrients present in the soil.
- CO 2:** Gain knowledge about plant nutrition and different types of fertilizers.
- CO 3:** Appreciate the importance of organic manure and bio fertilizers.
- CO 4:** Able to produce compost, farm yard compost and vermin compost.
- CO 5:** Acquire skills on isolation and maintenance of Bio fertilizers.



  
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**SEMESTER- 5**  
**COURSE NAME: ORGANIC FARMING (Practical)**  
**COURSE CREDITS: 1**

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**COURSE OUTCOMES:**

- Co 1:** Able to estimate NPK levels of soil
- CO 2:** Develop skills on preparation of vermin compost
- CO 3:** Learn the technique of establishing organic farms
- CO 4:** Equip with the skill of preparation of microbial media
- CO 5:** Demonstrate the collection and processing raw materials.



  
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**SEMESTER -5**  
**COURSE NAME: BIOFERTILIZERS AND BIOPESTICIDE PRODUCTION (Theory)**  
**COURSE CREDITS: 4**

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**COURSE OUTCOMES:**

**CO 1:** Understand the importance of bio fertilizers for sustaining agriculture.

**CO 2:** Appreciate the role of VAM in phosphorous solubilisation.

**CO 3:** Define bio pesticides in nature.

**CO 4:** Produce bio fertilizers and bio pesticides on large scale.

**CO 5:** Able to prepare inoculums for field application.



  
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**SEMESTER-5**  
**COURSE NAME: Biofertilizers and biopesticides production (practical)**  
**Course credits:1**

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**COURSE OUTCOMES:**

**CO 1:** Able to prepare bacterial and fungal media

**CO 2:** Able to isolate and identify symbiotic and free living nitrogen fixing bacteria

**CO 3:** Able to isolate fungal biocontrol agents from soil.

**CO 4:** Develop skills for large scale production of microorganisms

**CO 5:** Hands on Expertise on staining techniques.

  
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**CBCS / Semester System (w.e.f. 2020-'21 Admitted Batch)**

**I Semester /Botany Core**

**Course - 1 Fundamentals of Microbes and Non-vascular Plants (Viruses, Bacteria, Fungi, Lichens, Algae and Bryophytes)**

**Course Outcomes: ( Theory)**

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

CO 1: Explain origin of life on the earth.→

CO2 : Illustrate diversity among the viruses and prokaryotic organisms and can categorize→ them. Classify fungi, lichens, algae and bryophytes based on their structure, reproduction and→ life cycles.

CO3: Analyze and ascertain the plant disease symptoms due to viruses, bacteria and fungi.→

CO4: Recall and explain the evolutionary trends among amphibians of plant kingdom for→ their shift to land habitat.

CO5: Evaluate the ecological and economic value of microbes, thallophytes and bryophytes→

**Course Outcomes(Practical) :**

On successful completion of this practical course, student shall be able to;

CO1:. Demonstrate the techniques of use of lab equipment, preparing slides and identify the material and draw diagrams exactly as it appears.

CO2:. Observe and identify microbes and lower groups of plants on their own.

CO3:. Demonstrate the techniques of inoculation, preparation of media etc.

CO4. Identify the material in the permanent slides etc



  
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## II Semester /Botany

### Core Course – 2 Basics of Vascular plants and Phytogeography (Pteridophytes, Gymnosperms, Taxonomy of Angiosperms and Phytogeography)

#### Course Outcomes:

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

C01: Classify and compare Pteridophytes and Gymnosperms based on their— morphology, anatomy, reproduction and life cycles.

C02: Justify evolutionary trends in tracheophytes to adapt for land habitat.—

C03: Explain the process of fossilization and compare the characteristics of extinct and— extant plants.

C04: Critically understand various taxonomical aids for identification of Angiosperms.—

C05: Analyze the morphology of the most common Angiosperm plants of their— localities and recognize their families.

C06: Evaluate the ecological, ethnic and economic value of different tracheophytes and— summarize their goods and services for human welfare.

C07: Locate different phytogeographical regions of the world and India and can analyze— their floristic wealth.

#### Course Outcomes : Practical)

On successful completion of this course students shall be able to:

C01: Demonstrate the techniques of section cutting, preparing slides, identifying of the material and :drawing exact figures.



  
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CO2: . Compare and contrast the morphological, anatomical and reproductive features of vascular plants.

CO3: . Identify the local angiosperms of the families prescribed to their genus and species level and prepare herbarium.

CO4: Exhibit skills of preparing slides, identifying the given twigs in the lab and drawing figures of plant twigs, flowers and floral diagrams as they are.

CO5: Prepare and preserve specimens of local wild plants using herbarium technique



  
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**Semester /Botany Core Course – 3**  
**Anatomy and Embryology of Angiosperms, Plant Ecology and**  
**Biodiversity**

**Course outcomes: (Theory)**

On successful completion of this course, the students will be able to; U

CO1: Understand on the organization of tissues and tissue systems in plants.→

CO2: Illustrate and interpret various aspects of embryology.→

CO3: Discuss the basic concepts of plant ecology, and evaluate the effects→ of environmental and biotic factors on plant communities.

CO4: Appraise various qualitative and quantitative parameters to study the population→ and community ecology.

CO5: Correlate the importance of biodiversity and consequences due to its loss.→

CO6 : Enlist the endemic/endangered flora and fauna from two biodiversity hot spots→ in India and assess strategies for their conservation

**Course Outcomes: ( Practical)**

On successful completion of this practical course students shall be able to:

CO1: Get familiarized with techniques of section making, staining and microscopic study of vegetative, anatomical and reproductive structure of plants.

CO2: Observe externally and under microscope, identify and draw exact diagrams of the material in the lab.

CO3: Demonstrate application of methods in plant ecology and conservation of biodiversity and qualitative and quantitative aspects related to populations and communities of plants.



  
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## IV Semester/ Botany Core Course – 4

### Plant Physiology and Metabolism

**Course outcomes: (Theory)** On successful completion of this course, the students will be able to;

CO1: Comprehend the importance of water in plant life and mechanisms for transport→ of water and solutes in plants.

CO2: Evaluate the role of minerals in plant nutrition and their deficiency symptoms.→

CO3: Interpret the role of enzymes in plant metabolism.→

CO4: Critically understand the light reactions and carbon assimilation processes→ responsible for synthesis of food in plants.

CO5: Analyze the biochemical reactions in relation to Nitrogen and lipid metabolisms.→

CO6: Evaluate the physiological factors that regulate growth and development in plants.→

CO7L Examine the role of light on flowering and explain physiology of plants under stress→ conditions.

### **Course outcomes: (Practical)**

On successful completion of this practical course, students shall be able to:

CO1: . Conduct lab and field experiments pertaining to Plant Physiology, that is, biophysical and biochemical processes using related glassware, equipment, chemicals and plant material.

CO2: Estimate the quantities and qualitative expressions using experimental results and calculations

CO3: Demonstrate the factors responsible for growth and development in plants.



  
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**IV Semester / Botany Core Course –5**  
**Cell Biology, Genetics and Plant Breeding**

**Course outcomes: (Theory)**

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

CO1: Distinguish prokaryotic and eukaryotic cells and design the model of a cell.

CO2: Explain the organization of a eukaryotic chromosome and the structure of— genetic material.

CO3: Demonstrate techniques to observe the cell and its components under— a microscope.

CO4: Discuss the basics of Mendelian genetics, its variations and interpret inheritance— of traits in living beings.

CO5: Elucidate the role of extra-chromosomal genetic material for inheritance of— characters.

CO6: Evaluate the structure, function and regulation of genetic material.—

CO7: Understand the application of principles and modern techniques in plant breeding.—

CO8: Explain the procedures of selection and hybridization for improvement of crops.—



  
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### Course Outcomes: ( Practical)

After successful completion of this practical course the student shall be able to:

CO1. Show the understanding of techniques of demonstrating Mitosis and Meiosis in the laboratory and identify different stages of cell division.

CO2. Identify and explain with diagram the cellular parts of a cell from a model or picture and prepare models

CO3. Solve the problems related to crosses and gene interactions.

CO4. Demonstrate plant breeding techniques such as emasculation and bagging



  
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## 5<sup>th</sup> Sem Course 6C: Plant Tissue Culture (Skill Enhancement Course (Elective),

### Course Outcomes: ( Theory)

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

1. Comprehend the basic knowledge and applications of plant tissue culture.
2. Identify various facilities required to set up a plant tissue culture laboratory.
3. Acquire a critical knowledge on sterilization techniques related to plant tissue culture.
4. Demonstrate skills of callus culture through hands on experience.
5. Understand the biotransformation technique for production of secondary metabolites.

### Course Outcomes: ( Practical)

On successful completion of this practical course, student will be able to:

1. List out, identify and handle various equipment in plant tissue culture lab.
2. Learn the procedures of preparation of media.
3. Demonstrate skills on inoculation, establishing callus culture and Micro propagation.
4. Acquire skills in observing and measuring callus growth. 5. Perform some techniques related to plant transformation for secondary Metabolite production



  
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## 5<sup>th</sup> Sem Course 7C: Mushroom Cultivation (Skill Enhancement Course (Elective),

### COURSE Outcomes: ( Theory)

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

1. Understand the structure and life of a mushroom and discriminate edible and poisonous mushrooms.
2. Identify the basic infrastructure to establish a mushroom culture unit.
3. Demonstrate skills preparation of compost and spawn.
4. Acquire a critical knowledge on cultivation of some edible mushrooms.
5. Explain the methods of storage, preparation of value-added products and marketing

### COURSE Outcomes: ( Practical)

On successful completion of this practical course, student will be able to:

1. Identify and discriminate different mushrooms based on morphology.
2. Understand facilities required for mushroom cultivation.
3. Demonstrate skills on preparation of spawn, compost and casing material.
4. Exhibit skills on various cultivation practices for an edible mushroom.



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**CBCS/Semester System (w.e.f.2020-21 Admitted batch)**

**1 SEMESTER / Zoology Core**

**Course -1 ANIMAL DIVERSITY NON-CHORDATES**

**Course Outcomes (Theory)**

On successful completion of this course, the students will able to

**CO 1:** Know about the general characters and classification up to orders from phylum protozoa to hemichordate

**CO 2:** Gain knowledge about some of the important and common protozoans, helminthes, arthropods of parasitic in nature

**CO 3:** Understand about the morphology of earth worms and economic importance of vermin compost

**CO 4:** Understand about pearl formation in pelecypoda, water vascular system in star fish

**CO 5:** Identify the various invertebrate larval forms

**Course Outcomes (Practical)**

On successful completion of the practical course, students shall be able to:

**CO 1:** To understand the importance of preservation of different non -chordate species

**CO 2:** To identify the animals based on the special identifying characters

**CO 3:** To understand the different organs system through demo or virtual dissections

**CO 4:** To maintain a neat labeled record of the identified preserved species



  
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**CBCS/Semester System (w.e.f.2020-21 Admitted batch)**  
**II SEMESTER / Zoology Core**

**Course -2 ANIMAL DIVERSITY CHORDATES**

**Course Outcomes (Theory)**

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

- CO 1:** Know about distinct features and distribution of chordates, origin of chordates
- CO 2:** Know about general characters and classification of Protochordates, Cyclostomes, Fishes, Amphibia, Reptilia, Aves, and Mammals
- CO 3:** Structure and life history of herdmaria (Retgressive Metamorphosis)
- CO 4:** Gain knowledge about the types of scales in fishes, Migration of fishes, Flight adaptations in birds.
- CO 5:** Acquire knowledge on the dentition in mammals

**Course Outcomes (Practical)**

On successful completion of the practical course, students shall be able to:

- CO 1:** To understand the importance and other methods of preservation of chordates
- CO 2:** To identify chordates species based on special identifying characters
- CO 3:** To understand the internal anatomy of animals through demo or virtual dissections
- CO 4:** To maintain neat, labeled record of identified preserved specimens



  
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**CBCS/Semester System (w.e.f.2020-21 Admitted batch)**  
**III SEMESTER / Zoology Core**

**Course -3 CELL BIOLOGY, GENETICS, MOLECULAR BIOLOGY & EVOLUTION**

**Course Outcomes (Theory)**

**CO 1:** To understand the basic unit of living organisms and to differentiate the organisms by their cell structure

**CO 2:** Know about the structure and function of plasma membrane and different cell organelles.

**CO 3:** To understand the branch of heredity, interaction of genes, sex determination

**CO 4:** Acquiring knowledge on the central dogma of molecular biology & flow of genetics information from DNA to proteins

**CO 5:** Know about the principles & forces of evolution of life on earth ,process of evolution of new species.

**Course Outcomes (Practical)**

On successful completion of the practical course, students shall be able to:

**CO 1:** Able to prepare temporary slides of mitosis

**CO 2:** Able to solve genetics problems

**CO 3:** To understand about the study of human karyotyping

**CO 4:** Able to identify the fossil evidences, Darwin finches



  
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**CBCS/Semester System (w.e.f.2020-21 Admitted batch)  
IV SEMESTER / Zoology Core**

**Course -4 ANIMAL PHYSIOLOGY, CELLULAR METABOLISM & EMBRYOLOGY**

**Course Outcomes (Theory)**

**CO 1:** Understand the functions and important animal physiological system including digestion, cardio-respiratory and renal system.

**CO 2:** Understand the muscular system & the neuro - endocrine regulation of animal growth, development & metabolism with a specific knowledge

**CO 3:** To understand the chemicals of bio molecular & enzymes

**CO 4:** Develop broad understanding the basic metabolism activities, anabolism & catabolism of biomolecules

**CO 5:** Describe the key events in early embryonic development starting from the formation of foetal membranes

**Course Outcomes (Practical)**

**CO 1:** Gain knowledge animal physiology by qualitative tests

**CO 2:** Differential count of human blood

**CO 3:** Gain knowledge on cellular metabolism

**CO 4:** Acquire knowledge on slides observation on testes, ovary of mammal



  
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**CBCS/Semester System (w.e.f.2020-21 Admitted batch)  
V SEMESTER / Zoology Core**

**Course 5 - IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY**

**Course Outcomes (Theory)**

- CO 1:** To get knowledge of the organs of immune system, types of immunity ,cells and organs of immunity
- CO 2:** To describe immunological response as how its triggered and regulated antibodies
- CO 3:** To understand the applications of biotechnology in the fields of industry and agriculture including animal cell/tissues
- CO 4:** Know about the culture, stem cell technology & genetic engineering.
- CO 5:** Get familiar with the tools & techniques of animal biotechnology

**Course Outcomes (Practical)**

- CO 1:** Acquire skills on demonstration of lymphoid organs & observing histological slides of spleen, thymus & lymph nodes.
- CO 2:** Know about blood groups, ELISA& immune electrophoresis by demonstration method
- CO 3:** Learn about the use of autoclave & importance of sterilization
- CO 4:** Acquire skills for handling equipments for biotechnology practicals
- CO 5:** Know about blotting techniques & DNA fingerprinting



  
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**COURSE-I**  
**CBCS/SEMESTER SYSTEM B.Sc. PHYSICS**  
**MECHANICS, WAVES AND OSCILLATIONS**

**Course Outcomes (Theory)**

**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.

  
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## Practical Course 1: Mechanics, Waves and Oscillations

### Course outcomes (Practicals):

**CO1:** 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.

**CO2:** Know how to determine the acceleration due to gravity at a place using Compound pendulum and Simple pendulum.

**CO3:** Notice the difference between flat resonance and sharp resonance in case of volume resonator and sonometer experiments respectively.

**CO4:** 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.

**CO5:** Demonstrate the formation of stationary waves on a string in Melde's string experiment.

**CO7:** Observe the motion of coupled oscillators and normal modes.

  
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**COURSE-II**  
**CBCS/SEMESTERSYST B.Sc. PHYSICS**  
**WAVE OPTICS**

**CourseOutcomes (Theory)**

**CO1:** 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.

**CO2:** Distinguish between Fresnel's diffraction and Fraunhofer diffraction and observe the diffraction patterns in the case of single slit and the diffraction grating.

**CO3:** Describe the construction and working of zone plate and make the comparison of zone plate with convex lens.

**CO4:** Explain the various methods of production of plane, circularly and polarized light and their detection and the concept of optical activity.

**CO5:** Comprehend the basic principle of laser, the working of He-Ne laser and Ruby lasers and their applications in different fields.

**CO6:** Explain about the different aberrations in lenses and discuss the methods of minimizing them.

**CO7:** Understand the basic principles of fibre optic communication and explore the field of Holography and Nonlinear optics and their applications.

  
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## Practical Course II: Wave Optics

### Course outcomes (Practicals):

**CO1:** 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.

**CO2:** Understand the principle of working of polarimeter and the measurement of specific rotatory power of sugar solution.

**CO3:** Know the techniques involved in measuring the resolving power of telescope and dispersive power of the material of the prism.

**CO4:** 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.



  
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**COURSE-III**  
**CBCS/SEMESTERSYSTEM B.Sc. PHYSICS**  
**HEAT AND THERMODYNAMICS**

**CourseOutcomes (Theory)**

**CO1:** 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.

**CO2:** 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.

**CO3:** Understand the working of Carnot's ideal heat engine, Carnot cycle and its efficiency.

**CO4:** Develop critical understanding of concept of Thermodynamic potentials, the formulation of Maxwell's equations and its applications.

**CO5:** Differentiate between principles and methods to produce low temperature and liquefy and also understand the practical applications of substances at low temperatures.

**CO6:** Examine the nature of black body radiations and the basic theories.



  
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## Practical Course II: HEAT AND THERMODYNAMICS

### Course outcomes (Practicals):

CO 1: Perform some basic experiments in thermal Physics, viz., determinations of Stefan's constant, coefficient of thermal conductivity, variation of thermo-emf of athermocouple with temperature difference at its two junctions, calibration of a thermocouple and Specific heat of a liquid.



  
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**COURSE-IV**  
**CBCS/SEMESTERSYSTEM**

**B.Sc.PHYSICS**  
**ELECTRICITY, MAGNETISM AND ELECTRONICS**

**CourseOutcomes (Theory)**

**CO1:** 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.

**CO2:** Distinguish between the magnetic effect of electric current and electromagnetic induction and apply the related laws in appropriate circumstances.

**CO3:** Understand Biot and Savart's law and Ampere's circuital law to describe and explain the generation of magnetic fields by electrical currents.

**CO4:** Develop an understanding on the unification of electric and magnetic fields and Maxwell's equations governing electromagnetic waves.

**CO5:** Phenomenon of resonance in LCR AC-circuits, sharpness of resonance, Q-factor, Power factor and the comparative study of series and parallel resonant circuits.

**CO6:** Describe the operation of p-n junction diodes, zener diodes, light emitting diodes and transistors.

**CO7:** Understand the operation of basic logic gates and universal gates and their truth tables.



  
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## Practical Course II: ELECTRICITY, MAGNETISM AND ELECTRONICS

### Course outcomes (Practicals):

**CO1:** Measure the current sensitivity and figure of merit of a moving coil galvanometer.

**CO2:** Observe the resonance condition in LCR series and parallel circuit.

**CO3:** Learn how a sonometer can be used to determine the frequency of AC-supply.

**CO4:** Observe the variation of magnetic field along the axis of a circular coil carrying current using Stewart and Gee's apparatus.

**CO5:** Understand the operation of PN junction diode, Zener diode and a transistor and their V-I characteristics.

**CO6:** 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.



  
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**COURSE-V**  
**CBCS/SEMESTERSYSTEM B.Sc.PHYSICS**  
**MODERN PHYSICS**

**Course Outcomes (Theory)**

**CO1:** Develop an understanding on the concepts of Atomic and Modern Physics, basic elementary quantum mechanics and nuclear physics.

**CO2:** Develop critical understanding of concept of Matter waves and Uncertainty principle.

**CO3:** Get familiarized with the principles of quantum mechanics and the formulation of Schrodinger wave equation and its applications.

**CO4:** Examine the basic properties of nuclei, characteristics of Nuclear forces, salient features of Nuclear models and different nuclear radiation detectors.

**CO5:** Classify Elementary particles based on their mass, charge, spin, half life and interaction.

**CO6:** Get familiarized with the nano materials, their unique properties and applications.

**CO7:** Increase the awareness and appreciation of Super conductors and their practical applications



  
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## Practical Course II: MODERN PHYSICS

### Course outcomes (Practicals):

- Measure charge of an electron and  $e/m$  value of an electron by Thomson method.
- Understand how the Planck's constant can be determined using Photocell and LEDs.
- Study the absorption of  $\alpha$ -rays and  $\beta$ -rays, Range of  $\beta$ -particles and the characteristics of GM counter.
- Determine the Energy gap of a semiconductor using thermistor and junction diode
- Understand the operation of PN junction diode, Zener diode and a transistor and their V-I characteristics.
- 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.



  
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**Course 6C: APPLICATIONS OF ELECTRICITY & ELECTRONICS**  
**Skill Enhancement Course (Elective)**

**Course Outcomes (Theory)**

1. Identify various components present in Electricity & Electronics Laboratory.
2. Acquire a critical knowledge of each component and its utility (like resistors, Capacitors, inductors, power sources etc.).
3. Demonstrate skills of constructing simple electronic circuits consisting of basic circuit elements.
4. Understand the need & Functionality of various DC & AC Powersources.
5. Comprehend the design, applications and practices of various electrical & Electronic devices and also their trouble shooting.

**Practical Course :APPLICATIONS OF ELECTRICITY & ELECTRONICS**

**Course outcomes (Practicals):**

1. List out, identify and handle various equipment in Electrical & Electronics laboratory.
2. Learn the procedures of designing simple electrical circuits.
3. Demonstrate skills on the utility of different electrical components and devices.
4. Acquire the skills regarding the operation, maintenance and troubleshooting of various Devices in the lab.
5. Understand the different applications of Electromagnetic induction.



  
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**Course 7C: ELECTRONIC INSTRUMENTATION  
Skill Enhancement Course (Elective)**

**Course Outcomes (Theory)**

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



  
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## Practical Course :: ELECTRONIC INSTRUMENTATION

### Course outcomes (Practicals):

1. List out, identify and handle various equipment in Instrumentation Laboratory or Electronic Laboratory.
2. Learn the construction, operational principles of various instruments.
3. Demonstrate skills on handling, Maintenance & trouble shooting of different instruments used in the Labs.
4. Acquire skills in observing and measuring various electrical and electronic quantities.
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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# SPACES DEGREE COLLEGE, PAYAKARAOPETA

## COURSE & PROGRAM OUTCOMES OF CHEMISTRY (B.SC.) UNDER CBCS

The CBCS Course curriculum of the discipline of Chemistry is well designed and very promising. The core course would help to enrich the subject knowledge of the students and increase their confidence level in the field of both academia and industry. Generic electives make integration among various interdisciplinary courses to fulfill the vision and mission of designing the course. The introduction of Skill Enhancement Courses (SEC) would help to gain more powerful knowledge not only in their core Chemistry subject but also in interrelated multidisciplinary subjects both theoretically and practically. The inclusion of Discipline Specific Courses (DSE) has brought an opportunity in front of students to gain knowledge on various naturally and industrially important useful materials and also helps them to familiar and expert in handling different chemistry based software after proper training. In brief the student graduated with this type of curriculum would be able to disseminate subject knowledge along with necessary skills to suffice their capabilities for academia, entrepreneurship and industry.

After careful analysis of the course, the department of Chemistry has pointed out the following outcomes of the course.

### Course Outcomes

Semester	Course Code	Course Outcomes
SEM-1	CC-1	<b>INORGANIC AND PHYSICAL CHEMISTRY</b> CO-1: To Understand the basic concepts of p-block elements, d- block elements, f- block elements and theories of bonding in metals. CO-2: Explain the difference between solid, liquid and gases in terms of intermolecular interactions. CO-3: Apply the concepts of gas equations like Vanderwaal's gas equation CO-4: To understand the concepts of critical constants, isotherms of CO <sub>2</sub> , liquefaction of gases and liquid crystals. CO-5: To understand the concepts of solids like crystal systems, Bravais Lattice, Laws of Crystallography, Crystal Planes, Bragg's equation and defects in crystals. CO-6: To understand CST, azeotropic mixtures, colligative properties and solubility product

  
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SEM-1	CC-2	<p><b>ANALYSIS OF SALT MIXTURE</b></p> <p><b>CO-1:</b> To Understand the basic concepts of qualitative analysis of inorganic mixture.</p> <p><b>CO-2:</b> Use glassware, equipment and chemicals and follow experimental procedures in the laboratory</p> <p><b>CO-3:</b> Apply the concepts of common ion-effect, solubility product and concepts related to qualitative analysis.</p>
SEM-2	CC-3	<p><b>ORGANIC &amp; GENERAL CHEMISTRY</b></p> <p><b>CO-1:</b> To learn in detail about the synthesis, properties, chemical reactions and reaction mechanisms of alkenes and alkynes</p> <p><b>CO-2:</b> To understand about different types of electrophilic and nucleophilic aromatic substitution reactions, reaction intermediates and their mechanisms</p> <p><b>CO-4:</b> To Understand and explain the differential Behavior of organic compounds based on fundamental concepts learnt.</p> <p><b>CO-5:</b> Formulate the mechanism of organic reactions by recalling and correlating the fundamental properties of the reactants involved.</p> <p><b>CO-5:</b> To learn and identify many organic reaction mechanisms including Free Radical Substitution, Electrophilic Addition and Electrophilic Aromatic Substitution.</p> <p><b>CO-6:</b> Correlate and describe the stereo chemical properties of organic compounds and reactions.</p>
	CC-4	<p><b>VOLUMETRIC ANALYSIS</b></p> <p><b>CO-1:</b> To use glassware, equipment and chemicals and follow experimental procedures in the laboratory</p> <p><b>CO-2:</b> To understand and explain the volumetric analysis based on fundamental concepts learnt in ionic equilibria.</p> <p><b>CO-3:</b> To learn and identify the concepts of a standard solutions, primary and secondary standards.</p> <p><b>CO-4:</b> Facilitate the learner to make solutions of various molar concentrations.</p> <p><b>CO-5:</b> To learn the concept of the mole; Converting moles to grams; Converting grams to moles; Defining concentration; Dilution of Solutions; Making different molar concentrations</p>

  
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SEM-3	CC-5	<p><b>ORGANIC CHEMISTRY &amp; SPECTROSCOPY</b>  <b>CO-1:</b> Understand preparation, properties and reactions of halo alkanes, halo arenes and oxygen containing functional groups.  <b>CO-2 :</b> Use the synthetic chemistry learnt in the course to do functional group transformations.  <b>CO-3:</b> To propose possible mechanism for any relevant reaction</p> <p><b>CO-4:</b> To study the fundamental laws of spectroscopy and Selection rules, to know the basic principles of Instrumentation for UV-visible spectroscopy, Infra-red spectroscopy and NMR spectroscopy and their use for the determination of structure of a compound quantitative analysis of geometrical isomers and keto-enol tautomerism.</p>
	CC-6	<p><b>ORGANIC PREPARATIONS &amp; IR-SPECTRAL ANALYSIS</b>  <b>CO-1:</b> To how to use glassware, equipment and chemicals and following experimental procedures in the laboratory  <b>CO-2:</b> To how to calculate limiting reagent, theoretical yield, and percent yield  <b>CO-3:</b> To how to engage in safe laboratory practices by handling laboratory glassware, equipment, and chemical reagents appropriately  <b>CO-4 :</b> To how to dispose of chemicals in a safe and responsible manner  <b>CO-5:</b> To how to perform common laboratory techniques including reflux, distillation, recrystallization, vacuum filtration.  <b>CO-6:</b> To how to create and carryout work up and separation procedures  <b>CO-7</b> To 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</p>
SEM-4	CC-7	<p><b>INORGANIC, ORGANIC &amp; PHYSICAL CHEMISTRY</b>  <b>CO-1:</b> To learn about the laws of absorption of light energy by molecules and the subsequent photochemical reactions.  <b>CO-2 :</b> To understand the concept of quantum efficiency and mechanisms of photochemical reactions.</p>
	CC-8	<p><b>ORGANIC QUALITATIVE ANALYSIS</b>  <b>CO-1:</b> To use glassware, equipment and chemicals and follow experimental procedures in the laboratory  <b>CO-2:</b> To determine melting and boiling points of organic compounds  <b>CO-3 :</b> To understand the application of concepts of different organic reactions studied in theory part of organic chemistry</p>

  
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SEM-IV	CC-9	<b>INORGANIC &amp; PHYSICAL CHEMISTRY</b> <b>CO-1:</b> To understand concepts of boundary conditions and quantization, probability distribution, most probable values, uncertainty and expectation values <b>CO-2 :</b> Application of quantization to spectroscopy. <b>CO-3:</b> To Various types of spectra and their use in structure determination. <b>CO-4 :</b> To understand concepts of coordination chemistry and theories in co-ordination chemistry.
	CC-10	<b>CONDUCTOMETRIC AND POTENTIOMETRY</b> <b>TITRIMETRY</b> <b>CO-1 :</b> To use glassware, equipment and chemicals and follow experimental procedures in the laboratory <b>CO-2 :</b> To apply concepts of electrochemistry in experiments <b>CO-3:</b> Be familiar with electro analytical 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
	CC-11	<b>ANALYTICAL METHODS IN CHEMISTRY-1(SKILL ENHANCEMENT COURSE (ELECTIVE))</b> Students after successful completion of the course will be able to: <b>CO-1:</b> To identify the importance of solvent extraction and ion exchange method. <b>CO-2:</b> To acquire knowledge on the basic principles of volumetric analysis and gravimetric analysis. <b>CO-3:</b> To demonstrate the usage of common laboratory apparatus used in quantitative analysis. <b>CO-4:</b> To understand the theories of different types of titrations. <b>CO-5:</b> To gain knowledge on different types of errors and the in minimization methods. <b>CO-6:</b> To understand the hardness of water and why cause hardness and removal methods.
	CC-12	<b>ANALYTICAL METHODS IN CHEMISTRY-1</b> <b>CO-1:</b> To estimate Iron (II) using standard Potassium dichromate solution <b>CO-2:</b> To learn the procedure for the estimation of total hardness of water <b>CO-3:</b> To demonstrate the determination of chloride using Mohr's method <b>CO-4:</b> To acquire skills in the operation and calibration of pH meter Perform the strong acid vs strong base titration using pH meter

  
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CC-13

## **ANALYTICAL METHODS IN CHEMISTRY-2(SKILL ENHANCEMENT COURSE (ELECTIVE)**

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

**CO-1:** To identify the importance of chromatography in the separation and identification of compounds in a mixture

**CO-2:** To acquire a critical knowledge on various chromatographic techniques.

**CO-3:** To demonstrate skills related to analysis of water using different techniques.

**CO-4:** To understand the principles of spectro chemistry in the determination of metal ions.

**CO-5:** Comprehend the applications of atomic spectroscopy.



  
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SEM-5	CC-14	<p><b>ANALYTICAL METHODS IN CHEMISTRY-2</b></p> <p>On successful completion of this practical course, students shall be able to:</p> <p><b>CO-1:</b> To perform the separation of a given dye mixture using TLC</p> <p><b>CO-2:</b> To learn the preparation of TLC plates</p> <p><b>CO-3:</b> To demonstrate the separation of mixture of amino acids using paper chromatography</p> <p><b>CO-4:</b> To acquire skills in using column chromatography for the separation of dye mixture</p>
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# SPACES DEGREE COLLEGE, PAYAKARAOPETA

## DEPARTMENT OF MATHEMATICS

### UG COURSE OUTCOMES

#### **PAPER-I: DIFFERENTIAL EQUATIONS**

Upon completion of the course students should be able

- To analyze real world scenarios to recognize when ordinary differential equations (ODEs) or systems of ODEs are appropriate, formulate problems about the scenarios, creatively model these scenarios (using technology, if appropriate) in order to solve the problems using multiple approaches, judge if the results are reasonable, and then interpret and clearly communicate the results
- To recognize ODEs and system of ODEs concepts that are encountered in the real world, understand and be able to communicate the underlying mathematics involved to help another person gain insight into the situation
- To work with ODEs and systems of ODEs in various situations and use correct mathematical terminology, notation, and symbolic processes in order to engage in work, study, and conversation on topics involving ODEs and systems of ODEs with colleagues in the field of mathematics, science or engineering

#### **PAPER-II: SOLID GEOMETRY**

After studying this course, students should be able

- To understand geometrical terminology for angles, triangles, quadrilaterals and circles
- To measure angles using a protractor
- To use geometrical results to determine unknown angles
- To recognise line and rotational symmetries
- To find the areas of triangles, quadrilaterals and circles and shapes based on these

#### **PAPER-III: ABSTRACT ALGEBRA**

Upon successful completion of Abstract Algebra, students will be able to

- Assess properties implied by the definitions of groups and rings
- Use various canonical types of groups (including cyclic groups and groups of permutations) and canonical types of rings (including polynomial rings and modular rings)
- Analyze and demonstrate examples of subgroups, normal subgroups and quotient groups
- Analyze and demonstrate examples of ideals and quotient rings
- Use the concepts of isomorphism and homomorphism for groups and rings
- Produce rigorous proofs of propositions arising in the context of abstract algebra



  
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## PAPER-IV: REAL ANALYSIS

Upon successful completion of Real Analysis, students will be able to

- Describe the real line as a complete, ordered field
- Determine the basic topological properties of subsets of the real numbers
- Use the definitions of convergence as they apply to sequences, series, and functions
- Determine the continuity, differentiability, and integrability of functions defined on subsets of the real line
- Apply the Mean Value Theorem and the Fundamental Theorem of Calculus to problems in the context of real analysis
- Produce rigorous proofs of results that arise in the context of real analysis

## PAPER-V: RING THEORY & VECTOR CALCULUS

Upon successful completion of Ring Theory and Vector Calculus, students will be able to

- Abstract Algebra interlaces all branches of Mathematics
- The study of Abstract Algebra is imperative to develop Mathematical skills and their applications.
- Know the fundamental concepts in ring theory such as the concepts of ideals, quotient rings, integral domains, and fields.
- Further it is a foundation to higher studies in Mathematics

## PAPER-VI: LINEAR ALGEBRA

Upon successful completion of Linear Algebra, students will be able to

- Solve systems of linear equations
- Analyze vectors in  $\mathbb{R}^n$  geometrically and algebraically
- Recognize the concepts of the terms span, linear independence, basis, and dimension, and apply these concepts to various vector spaces and subspaces
- Use matrix algebra and the related matrices to linear transformations,
- Compute and use determinants,
- Compute and use eigenvectors and eigenvalues
- Determine and use orthogonality

## PAPER-VII: NUMERICAL ANALYSIS

Upon successful completion of Numerical Analysis, a student will be able to

- Derive numerical methods for approximating the solution of problems of continuous mathematics
- Analyze the error incumbent in any such numerical approximation
- Implement a variety of numerical algorithms using appropriate technology
- Compare the viability of different approaches to the numerical solution of problems arising in roots of solution of non-linear equations, interpolation and approximation, numerical differentiation and integration, solution of linear systems



  
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## **PAPER-VIII-A: INTEGRAL TRANSFORMATIONS**

Upon successful completion of Integral Transformations, students will be able to

- Have understanding regarding different kind of integral transforms.
- Understand Fourier transform and its properties and will be able to solve the examples based on it.
- Have deep understanding of Laplace Transformation and its real life application.
- Solve initial value problem and boundary value problem using Laplace Transform.
- Derive Fourier series representation of Periodic functions.

## **PAPER-VIII-B: ADVANCED NUMERICAL ANALYSIS**

Upon successful completion of Advanced Numerical Analysis, a student will be able to

- Derive numerical methods for approximating the solution of problems of continuous mathematics
- Analyze the error incumbent in any such numerical approximation
- Implement a variety of numerical algorithms using appropriate technology
- Compare the viability of different approaches to the numerical solution of problems arising in roots of solution of non-linear equations, interpolation and approximation, numerical differentiation and integration, solution of linear systems.



  
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**Department of Electronics**  
**Course outcomes (Cos)**

**I-CIRCUIT THEORY AND ELECTRONIC DEVICES**

**Course Objectives:**

1. Understanding the basic concepts and laws of DC and AC electrical networks and solving them using mesh and nodal analysis techniques.
2. Analyzing circuits in time and frequency domain. synthesizing the networks using passive elements.
3. Understanding the construction, working and VI characteristics of electronic devices.
4. Understanding the concept of power supply.

**Outcomes:-**

1. Apply concepts of electric network topology, nodes, branches, loops to solve circuit problems including the use of computer simulation.
2. Apply time and frequency concepts of analysis.
3. Synthesize the network using passive elements.
4. Know about amplifier circuits, switching circuits and oscillator circuits their design and use in electronics.
5. Design and construction of a power supply.

  
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## II-Digital Electronics

### Course Objectives:

1. Understanding the number systems, Binary codes and Complements.
2. Understanding the Boolean algebra and simplification of Boolean expressions.
3. Analyzing logic processes and implementing logical operations using combinational logic circuits.
4. Understanding the concepts of sequential circuits and to analyze sequential systems in terms of state machines.
5. Understanding characteristics of memory and their classification.

### Outcomes:-

1. Develop a digital logic and apply it to solve real life problems.
2. Analyze, design and implement combinational logic circuits.
3. Classify different semiconductor memories.
4. Analyze, design and implement sequential logic circuits.

  
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### III-Analog Circuits and Communication

#### OBJECTIVES:

1. To understand the concepts, working principles and key applications of linear integrated circuits.
2. To perform analysis of circuits based on linear integrated circuits.
3. To design circuits and systems for particular applications using linear integrated circuits.
4. To introduce students to various modulation and demodulation techniques of analog communication.
5. To analyze different parameters of analog communication techniques.
6. It also focuses on Transmitters and Receivers.

#### OUTCOMES:

1. Understand the fundamentals and areas of applications for the integrated circuits.
2. Analyze important types of integrated circuits.
3. Demonstrate the ability to design practical circuits that perform the desired operation.
4. Select the appropriate integrated circuit modules to build a given application.
5. Use of different modulation and demodulation techniques used in analog communication.
6. Identify and solve basic communication problems.
7. Analyze transmitters and receiver circuits.



  
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## IV- MICROPROCESSOR SYSTEMS

### **OBJECTIVES:**

1. To understand the basic architecture of 16 bit and 32 bit microprocessors.
2. To understand interfacing of a 16 bit microprocessor with memory and peripheral chips involving system design.
3. To understand techniques for faster execution of instructions and improve speed of
4. Operation and performance of microprocessors
5. To understand RISC based microprocessors.
6. To understand the concept of multi core processors.

### **OUTCOMES:**

1. The student can gain good knowledge on microprocessor and implement in practical applications
2. Design system using memory chips and peripheral chips for 16 bit 8086 microprocessor.
3. Understand and devise techniques for faster execution of instructions, improve speed of operations and enhance performance of microprocessors.
4. Understand multi core processor and its advantages



  
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## V-MICROCONTROLLER AND INTERFACING

### OBJECTIVES:

1. To understand the concepts of microcontroller based system.
2. To enable design and programming of microcontroller based system.
3. To know about the interfacing Circuit

### OUTCOMES:

1. The student can gain good knowledge on microcontrollers and implement in practical applications
2. learn Interfacing of Microcontroller
3. get familiar with real time operating system



  
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## VI-Industrial Electronics

### Learning Outcomes:

1. Identify various facilities required to set up a basic Instrumentation Laboratory.
2. Acquire a critical knowledge of various Electrical Instruments used in the Laboratory.
3. Demonstrate skills in using instruments like Rectifiers, Multimeters, Power supplies, Voltage Regulators etc. through hands-on experience..
4. Understand the Principle and operation of different Electronic Heating devices.

## VII-Electronic Instrumentation

### Learning Outcomes:

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



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## DEPARTMENT OF SANSKRIT

### Course Out comes (Cos)

#### SEMESTER –I (Poetry & Grammar)

**CO1:** To have knowledge on language and literature of Sanskrit – various genres of Sanskrit literatures.

**CO2:** To have knowledge about ancient Sanskrit literature – the grammar aspects of poetry

**CO3:** Inculcation of moral values through teaching of Sanskrit poetry and other literature.

**CO4:** To improve functional communication skills in Sanskrit language

#### SEMESTER – II (Prose & Grammar)

**CO1:** To have knowledge on the ancient and modern prose texts in Sanskrit

**CO2:** To have knowledge on writing styles of different writers in Sanskrit language.

**CO3:** To enrich Sanskrit vocabulary for better understanding and better communication

**CO4:** To appreciate the usage of Sanskrit in modern world.

#### SEMESTER – III (Drama, Upanishad, Alankaras)

**CO1:** To have knowledge on evolution of Sanskrit drama, Language, Character, Plot...Etc.

**CO2:** To understand the dialogues in Sanskrit drama with emphasis on vocabulary.

**CO3:** To understand how the vedic Sanskrit in Upanishad is different from the literary Sanskrit in drama

**CO4:** To understand different language and grammatical aspects in drama.



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# **SPACES DEGREE COLLEGE, PAYAKARAOPETA**

## **BACHELORS OF BUSINESS ADMINISTRATION**

**(HUMAN RESOURCES, OPERATIONS, MARKETING AND FINANCE DISCIPLINES)**

**Affiliated to the ANDHRA UNIVERSITY**

The College is affiliated to Andhra University. Thus, the college follows the guidelines and syllabus prescribed by the Affiliated University.

The BBA programme aims at creating transformed, future ready individuals who can take up any business challenge head-on, with a continuous emphasis on practical knowledge. The BBA course syllabus entails an immersive approach towards subjects like ACCOUNTS, ECONOMICS, MANAGEMENT, BEHAVIOUR and BUSINESS LAWS.

Here, we aim to teach them nuances of interplay between various factors in the business sphere. The students are taught to analyze the impact of the economy, laws and technology on business. In the latter half of the programme, BBA subjects are extremely varied in nature. From writing skills, negotiation and dispute resolution, human resource management, business laws, marketing management, social media and digital marketing—all are imbibed in the students with theoretical study and practical application.

Skill development subjects are inserted in the syllabus for the students to learn the job skills and improve knowledge which broadens the scope of employment. Skill development subjects are updated according to industry related curriculum.

  
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## **SEMESTER WISE COURSE DETAILS**

### **BBA-Semester I**

#### **Course 1A: PRINCIPLES OF MANAGEMENT**

##### **COURSE OBJECTIVES:**

- To enable the students to study the evolution of Management
- To study the functions and principles of management
- To learn the application of the principles in an organization.
- To focus and stress on current approaches and emerging concepts

##### **COURSE OUTCOMES**

- Student will acquaint himself with the management process, functions and principles.
- Students will also get the idea about new developments in management.
- Describe the social responsibility of Business towards the society.
- Critically examine the various organizations of the business firms and judge the best among them.
- It will focus on the theory and fundamental concepts of management including
  - Planning
  - Organization
  - Leadership
  - Control



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## **Course 1B: MANAGERIAL ECONOMICS**

### **COURSE OBJECTIVES:**

Managerial economics provides students with the knowledge, tools, and techniques to make effective economic decisions under conditions of risk and uncertainty. Demand, cost and pricing decisions are emphasized.

### **COURSE OUTCOMES:**

- Students develop an economic way of thinking to individual decisions and business decisions.
- Learn the nature of economics in dealing with the issues of scarcity of resources.
- Apply economic models for managerial problems, identify their relationships and formulate the decision making tools to be applied for business.
- Use economic analysis to evaluate controversial issues and policies.
- Recognize market failure and the role of the government in dealing with those failures.
- Analyze supply and demand analysis and its impact on consumer behavior
- Evaluate factors such as production and costs affecting a firm's behavior.

  
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## **COURSE 1C : QUANTITATIVE METHODS FOR MANAGERS**

### **COURSE OBJECTIVES**

Statistics is used to make inferences related to situations. Various Statistical methods can be applied to different situations to arrive at meaningful results. This subject aims to familiarize students towards perceiving and analyzing modern business & economic numerical and apply statistical techniques for arriving at sound management decisions.

### **COURSE OUTCOMES:**

- Understand the importance of statistics in real life.
- Formulate complete, concise and correct mathematical proofs.
- Frame problems using multiple mathematical and statistical tools, measuring relationships by using standard techniques.
- Build and assess data-based models.
- Learn and apply statistical tools in day life.
- Create quantitative models to solve real world problems in appropriate contexts.

  
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**BBA SEMESTER II**  
**COURSE 2A: ACCOUNTING FOR MANAGERS**

**COURSE OBJECTIVES:** Subject has basic concepts underlying the accounting practices and its techniques with special reference to Sole-proprietorship, Trading and Non trading concerns .

- To understand the basic concept of accounting, bookkeeping process and preparation of ledger.
- The subject also includes computerized accounting using the software TALLY.

**COURSE OUTCOMES**

On the completion of the course ,students can:

- Identify transactions and events that need to be recorded in the books of accounts.
- Equip with the knowledge of the accounting process and preparation of final accounts of sole traders.
- Develop the skill of recording financial transactions and preparation of reports.
- Analyze the difference between cash book and pass book in terms of balance and make reconciliation.
- Critically examine the balance sheets of a sole trader for different accounting periods.
- Design new accounting formulas & principles for business organizations.

  
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## **COURSE 2B : FUNDAMENTALS OF MARKETING**

### **COURSE OBJECTIVES**

- To study and critically analyze the basic concepts in marketing and to cater the needs of marketing.
- Develop an idea about marketing and the marketing
- Formulate new marketing strategies for a specific new product.
- environment

### **COURSE OUTCOMES**

- Understand the consumer behavior and marketing environment.
- Comprehend the product life cycle and product line decisions.
- Know the process of packaging and labeling to attract the customers.
- Develop new product lines and sales promotion techniques for a given product.
- Design and develop new advertisements for given products.

  
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## COURSE 2C: E-COMMERCE

### COURSE OBJECTIVES

- To demonstrate an in-depth knowledge of the roots, concepts and evolution of E-Business and E-Commerce along with its benefits and limitations.
- To demonstrate the awareness about security risks pertaining to E-Commerce and digital tools that can help prevent and/or overcome these threats.
- To Build an understanding of various concepts related to E-Payment Systems and Internet Banking.

### COURSE OUTCOMES

- Students develop an understanding of the concepts related to EDI and web-based tools used for electronic marketing.
- students are aware about security risks pertaining to E-Commerce and digital tools that can help prevent and/or overcome these threats.
- students gain knowledge of the roots, concepts and evolution of E-Business and E-Commerce along with its benefits and limitations.
- Students understand various concepts related to E-Payment Systems and Internet Banking.
- Students gain the knowledge of various applications of E-Business laterally with legal and social impact of E-Commerce.

  
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## **SEMESTER III**

### **COURSE 3A : ORGANIZATIONAL BEHAVIOR**

#### **COURSE OBJECTIVES**

- To understand the concepts of organizational behavior and its models
- To Identify the roles of managers in organizational behavior ,along with challenges and opportunities.
- To induce and enhance individual behavior and group behavior
- To make effective leaders by addressing the human side of enterprise.

#### **COURSE OUTCOMES**

On the completion of course students will ,

- Attain attitudes, perception ,Individual decision making and problem solving.
- Become effective leaders by addressing the human side of enterprise.
- Understand individual behavior in organizations, including attitudes, job satisfaction, emotions, personality, values, perception, decision making, and motivational theories.
- Understand group behavior in organizations, including communication, leadership, power and politics, conflict, and negotiations.
- Understand the organizational system, including organizational structures, culture, human resources, and change.



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## **COURSE 3B : HUMAN RESOURCE MANAGEMENT**

### **COURSE OBJECTIVES**

- To give students the knowledge, understanding and key skills that are required by today's HR professionals
- To enable students to effectively contribute to dynamic organizations.
- To develop the understanding of the concept of human resource management and to its relevance in organizations.
- To Integrate the knowledge of HR concepts to take correct business decisions

### **COURSE OUTCOMES**

- Students become proficient in the key functions of Human Resource Management, Human resource planning, Recruitment and selection, Performance management.
- Student understands the importance of Learning and development, Career planning, Function evaluation, Rewards and Recognition, Industrial relations, Employee participation and communication, Health and safety, Personal wellbeing and Administrative responsibilities
- Students inculcate the essential skill sets required to function as an HR manager.
- Students will be able to analyze the strategic issues and strategies required to select and develop manpower resources.
- Students contribute to the implementation and evaluation of HR plans.

  
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## **COURSE 3C : FINANCIAL MANAGEMENT**

### **COURSE OBJECTIVES:**

- The objective of the course is to familiarize students with basic fundamentals and tools and techniques of corporate Financial management in a changing, challenging and competitive global economic environment.
- To Improve students' understanding of the time value of money concept and the role of a financial manager in the current competitive business scenario.
- To develop knowledge on the allocation, management and funding of financial resources.

### **COURSE OUTCOMES** On the completion of the course student will

- Understand the concept of fundamental financial concepts, especially time value of money.
- Efficiently use tools and techniques of corporate Financial management
- Understand the role of a financial manager in the current competitive business scenario.
- Apply capital budgeting projects using traditional methods.
- Analyze the main ways of raising capital and their respective advantages and disadvantages in different circumstances..
- Integrate the concept and apply the financial concepts to calculate ratios and do the capital budgeting.

  
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## **SEMESTER 4**

### **COURSE 4 A : TRAINING AND DEVELOPMENT**

#### **COURSE OBJECTIVE**

- To develop an understanding of the evolution of training & development from a tactical to a strategic function.
- To provide an insight into what motivates adults to learn and the most appropriate methodologies to impart training.
- To understand the concept of training audit & training evaluation.
- To Understand basic concepts associated with the learning process, learning theories, training and development.

#### **COURSE OUTCOMES** On the completion of the course student will

- Understand various strategies used by organizations to measure performance & reward for the same
- Understand the concept of Learning Organizations & its benefits
- Understand training needs, identification of training needs, training processes, training methods, and evaluation of training;
- Emerging trends in training and development.

  
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## **COURSE 4 B : BUSINESS LAWS**

### **COURSE OBJECTIVES**

- To understand the legal environment of business and laws of business.
- To highlight the security aspects in the present cyber-crime scenario.
- To understand the various provisions of company law.
- To integrate the concept of business law with foreign trade .

### **COURSE OUTCOMES**      On the completion of the course student will

- Understand the legal environment of business and laws of business.
- Understand the security aspects in the present cyber-crime scenario.
- Apply basics of legal knowledge to business transactions.
- Understand the various provisions of company law.
- Engage critical thinking to predict outcomes and recommend appropriate action on issues relating to business associations and legal issues.
- Integrate concept of business law with foreign trade .

  
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## COURSE 4C: MICRO, SMALL AND MEDIUM ENTERPRISES

### MANAGEMENT

#### COURSE OBJECTIVES

- To understand the basic concepts of SME and challenges of MSMEs.
- Outline the opportunities to Set-Up SSI/SME Units and role of rural & women entrepreneurship.
- To illustrate roles of various institutions supporting MSMEs.
- To Manage of MSME, NPA & sickness units
- To evaluate the role of the Government in Promoting Entrepreneurship.

#### COURSE OUTCOMES On successful completion of this course, the students will

- Understand concepts of SME and challenges of MSMEs.
- Be able to Set-Up SSI/SME Units and role of rural & women entrepreneurship.
- Be able to play roles in various institutions supporting MSMEs.
- Learn Management of MSME, NPA & sickness units.
- Clearly understands the role of Government in Promoting Entrepreneurship.

  
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## **COURSE 4D : INTERNATIONAL BUSINESS**

### **COURSE OBJECTIVES**

- To explain the concepts in international business with respect to foreign trade/international business
- To apply the current business phenomenon and to evaluate the global business environment in terms of economic, social and legal aspects
- To analyze the principle of international business and strategies adopted by firms to expand globally

### **COURSE OUTCOMES**

On successful completion of this course, the students will

- Understand the concepts in international business with respect to foreign trade/international business.
- Be able to apply the current business phenomenon and to evaluate the global business environment in terms of economic, social and legal aspects
- understand the principle of international business and strategies adopted by firms to expand globally.
- Integrate concept in international business concepts with functioning of global trade.
- Be aware of the global business environment and its impacts on businesses.

  
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## **COURSE 4E      COST AND MANAGEMENT ACCOUNTING**

### **COURSE OBJECTIVES**

- To Understand various costing methods and management techniques.
- To Prepare a cost sheet, quotations and tenders to the organization for different works.
- To Analyze cost volume profit techniques to determine optimal managerial decisions.
- To Prepare analysis of various special decisions, using relevant management techniques.

### **COURSE OUTCOMES**    On successful completion of this course, the students will

- Be able to Understand various costing methods and management techniques.
- Apply Cost and Management accounting methods for both manufacturing and service industry.
- Prepare a cost sheet, quotations and tenders to the organization for different works.
- Analyze cost volume profit techniques to determine optimal managerial decisions.
- Compare and contrast the financial statements of firms and interpret the results.
- Prepare analysis of various special decisions, using relevant management techniques.

  
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## **COURSE 4F : FINANCIAL SERVICES**

### **COURSE OBJECTIVES :**

- To understand the role and function of the financial system in reference to the macro economy.
- To demonstrate an awareness of the current structure and regulation of the Indian financial services sector.
- To evaluate and create strategies to promote financial products and services.
- To examine and discuss various financial services. They would evaluate Leasing and Hire Purchase service and critically differentiate between leasing, hire purchase and Housing finance services.

### **COURSE OUTCOMES :** After completion of this course, the student will be able to

- Understand the role and function of the financial system in reference to the macro economy.
- Demonstrate an awareness of the current structure and regulation of the Indian financial services sector.
- Evaluate and create strategies to promote financial products and services.
- Students will examine and discuss various financial services. They would evaluate Leasing and Hire Purchase service and critically differentiate between leasing, hire purchase and Housing finance services.
- Students would discuss different types of consumer products, growth of plastic money and the growing popularity of credit rating.

  
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## **SEMESTER 5**

### **COURSE 5A : TALENT MANAGEMENT (HR)**

#### **COURSE OBJECTIVES**

- To familiarize the Students with Talent Management
- To help them understand the Acquisition, Retention, Development and Compensation practices
- To enhance understanding of the talent Management practices
- To Understand Talent Management Practices in India.

**COURSE OUTCOMES** : By the end of the course the student will be able to:

- Understand and explain talent Management practices in India and Global level.
- Understand and explain How to Acquire and retain talent.
- Understand the interplay between various aspects of Talent Acquisition, retention and development of talent.
- Understand and appreciate the role manager to manage talent
- Develop the competence required to work effectively by Star employees
- Appreciate the organizational context and apply relevant contemporary organizational practices to connect the talent
- Differentiate between the various challenges and issues to manage young talented employees.
- Analyze and appreciate the role of HR Manager for managing the star performers context.

  
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## **COURSE 5 B : GLOBAL HUMAN RESOURCE MANAGEMENT(HR)**

### **COURSE OBJECTIVES**

International Human Resource Management (IHRM) gives students the knowledge, understanding and key skills required by HR professionals working in an international context with multinational organizations and to enable students to effectively contribute to dynamic organizations

**COURSE OUTCOMES** On the completion of the course students will be able to:

- Demonstrate an understanding of key terms, theories/concepts and practices within the field of IHRM
- Appreciate the implications of increasing globalization for the management of human resources, with particular reference to IHRM in multinational corporations
- Develop and ability to undertake qualitative and quantitative research and apply this knowledge in the context of an independently constructed work (i.e. dissertation)
- Identify and appreciate the significance of ethical issues in HR practices and the management of people in the workplace.

  
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## **COURSE 5C:EXPORT AND IMPORT(OM)**

### **COURSE OBJECTIVES**

- To understand the concepts in custom clearance in international business with respect to foreign trade.
- To apply the current custom clearance phenomenon and to evaluate the global business environment in terms of economic, social and legal aspects.

**COURSE OUTCOMES** On the completion of the course students will be able to:

- Handle documentation procedures during International business.
- Understand the concepts in custom clearance in international business with respect to foreign trade.
- Apply the current custom clearance phenomenon and to evaluate the global business environment in terms of economic, social and legal aspects.
- Familiarize students with the process of international and domestic trade procedures.
- Form a base of policy framework in International Trading with special emphasis on India.
- Carry out documentation procedures and its sanctity in International Business.

  
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## **COURSE 5 D    BRAND MANAGEMENT (OM)**

### **COURSE OBJECTIVES**

- To understand how a new product is developed and maintained.
- To develop a strategic brand equity business plan based on an accurate analysis of a business situation.
- To evaluate the customer environment for new and existing brands and build this customer focus into brand strategy in unpredictable and complex contexts.
- To evaluate the feasibility of a new brand launch.
- To develop and execute a new brand launch plan.
- To evaluate the performance and situation of a brand for the purpose of recommending future strategies.

### **COURSE OUTCOMES**    On the completion of the course students will be able to:

- Enhance students' ability to apply creative and critical strategies and tactics involved in developing, positioning, leveraging, managing a brand, and measuring its value.
- Apply branding principles and marketing communication concepts and frameworks to achieve brand management goals and improve marketing performance.
- Understand and analyze the Brand Portfolio of the companies.
- Map out areas where the firm need brand extension
- Develop a consumer-centric approach to building, measuring and evaluating strategies that build brand equity for new and existing brands.

  
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## **Course 5E FOREIGN EXCHANGE MANAGEMENT(FM)**

### **COURSE OBJECTIVES**

- To create an understanding on foreign exchange Management in India
- To understand how the foreign Exchange Market operates
- To understand the principles of Currency valuation
- To explain techniques that can be used to hedge foreign exchange risk

### **COURSE OUTCOMES**

On the completion of the course students will be able to:

- understand how the foreign Exchange Market operates.
- understand the principles of Currency valuation.
- acquire knowledge about currency swaps.
- understand the different types of exchange rate risks.
- create an understanding on foreign exchange Management in India.
- explain techniques that can be used to hedge foreign exchange risk.

  
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## **COURSE 5F E-PAYMENTS SYSTEM(FM)**

### **COURSE OBJECTIVES**

- To understand the different forms of electronic money and how money moves through the world's banking systems
- To understand how electronic banking works and how security is achieved in payment systems
- To select and even design an appropriate payment method to fit a particular business model such as mobile platforms, undergo rapid change.

### **COURSE OUTCOMES**

On the completion of the course students will be able to:

- Understand the different forms of electronic money and how money moves through the world's banking systems
- Understand about the electronic payment system
- Know the difference between Payment system and Electronic Payment system;
- Know how the government regulates the payment system.
- Understand the need for security and risks involved in the payment system.

  
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# SPACES DEGREE COLLEGE, PAYAKARAOPETA

DEPARTMENT OF COMMERCE

Affiliated to the ANDHRA UNIVERSITY

## Semester wise Course Outcomes

B.Com (Computer Applications)

Semester I

### Course1A:FundamentalsofAccounting

#### CourseOutcomes:

Student will able to-

- CO1: Identify transactions and events that need to be recorded in the books of accounts.
- CO2: Equip with the knowledge of accounting process and preparation of final accounts of sole trader.
- CO3: Develop the skill of recording financial transactions and preparation of reports in accordance with GAAP.
- CO4: Analyze the difference between cash book and pass book in terms of balance and make reconciliation.
- CO5: Critically examine the balance sheet of a sole trader for different accounting periods.
- CO6: Design new accounting formulas & principles for business organizations.



  
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## Semester wise Course Outcomes

B.Com (Computer Applications)

Course I B: Business Organization and Management

### Course Outcomes:

Student will able to-

CO1: Understand different forms of business organizations.

CO2: Comprehend the nature of Joint Stock Company and formalities to promote a Company.

CO3: Describe the Social Responsibility of Business towards the society.

CO4: Critically examine the various organizations of the business firms and judge the best among them.

CO5: Design and plan to register a business firm. Prepare different documents to register a company at his own.

CO6: Articulate new models of business organizations.



  
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## Semester wise Course Outcomes

### B.Com (Computer Applications)

#### Semester II

### Course2A:FinancialAccounting

#### CourseOutcomes:

Student willableto-

- C01: Understandtheconceptofconsignmentandlearnthe accountingtreatmentofthevariousaspects of consignment.
- C02: Analyzetheaccountingprocessandpreparationofaccountsin consignmentandjointventure.
- C03: DistinguishJointVentureandPartnershipandtolearnthe methodsofmaintainingrecordsunder Joint Venture.
- C04: Determinetheusefullifeandvalueofthedepreciable assetsandmaintenanceofReservesin business entities.
- C05: Designanaccountingsystemfordifferentmodelsofbusinesses athisownusingtheprinciplesof existingaccountingsystem.



  
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## Semester wise Course Outcomes

B.Com (Computer Applications)

Course2B: Business Economics

### Course Outcomes:

Student will able to-

- CO1: Describe the nature of economics in dealing with the issues of scarcity of resources.
- CO2: Analyze supply and demand analysis and its impact on consumer behaviour.
- CO3: Evaluate the factors, such as production and costs affecting firms behaviour.
- CO4: Recognize market failure and the role of government in dealing with those failures.
- CO5: Use economic analysis to evaluate controversial issues and policies.
- CO6: Apply economic models for managerial problems, identify their relationships, and formulate the decision making tools to be applied for business.



  
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# Semester wise Course Outcomes

## B.Com (Computer Applications)

### Course2C:E-Commerce and Web Designing

#### CourseOutcomes:

Student will able to-

Remembers and states in a systematic way (Knowledge)

CO1: Understand the foundations and importance of E-commerce

CO2: Define Internet trading relationships including Business to Consumer, Business-to-Business, Intra-organizational

CO3: Describe the infrastructure for E-commerce

CO4: Discuss legal issues and privacy in E-Commerce

CO5: Understand the principles of creating an effective web page, including an in-depth consideration of information architecture B. Explains (Understanding)

CO6: Recognize and discuss global E-commerce issues

CO7: Learn the language of the web: HTML and CSS. C. Critically examines, using data and figures (Analysis and Evaluation)

CO8: Analyze the impact of E-commerce on business models and strategy

CO9: Assess electronic payment systems

CO10: Exploring a web development framework as an implementation example and create dynamically generated web site complete with user accounts, page level security, modular design using CSS



  
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## Semester wise Course Outcomes

B.Com (Computer Applications)

Course 3A: Advanced Accounting

### Semester III

#### Course Outcomes:

Student will be able to-

C01: Understand the concept of Non-profit organizations and its accounting process

C02: Comprehend the concept of single-entry system and preparation of statement of affairs

C03: Familiarize with the legal formalities at the time of dissolution of the firm

C04: Prepare financial statements for partnership firm on dissolution of the firm.

C05:

Employ critical thinking skills to understand the difference between the dissolution of the firm and dissolution of partnership



  
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# Semester wise Course Outcomes

B.Com (Computer Applications)

## Course3B:BusinessStatistics

### CourseOutcomes:

Student will able to-

C01: Understand the importance of Statistics in real life

C02: Formulate complete, concise, and correct mathematical proofs.

C03:

Frame problems using multiple mathematical and statistical tools, measuring relationships by using standard techniques.

C04: Build and assess data-based models.

C05: Learn and apply the statistical tools in day life.

C06: Create quantitative models to solve real world problems in appropriate contexts.



  
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## Semester wise Course Outcomes

B.Com (Computer Applications)

Course 4A: Corporate Accounting

### Semester IV

#### Course Outcomes:

Student will able to-

C01:

Understand the Accounting treatment of Share Capital and aware of process of book building.

C02: Demonstrate the procedure for issue of bonus shares and buyback of shares.

C03:

Comprehend the important provisions of Companies Act, 2013 and prepare final accounts of a company with Adjustments.

C04: Participate in the preparation of consolidated accounts for a corporate group.

C05: Understand analysis of complex issues, formulation of well-reasoned arguments and reaching better conclusions.

C06:

Communicate accounting policy choices with reference to relevant laws and accounting standards.



  
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## Semester wise Course Outcomes

B.Com (Computer Applications)

### Course4B: Cost and Management Accounting

#### Course Outcomes:

Student will able to-

CO1: Understand various costing methods and management techniques.

CO2: Apply Cost and Management accounting methods for both manufacturing and service industry.

CO3: Prepare cost sheet, quotations, and tenders to organization for different works.

CO4: Analyze cost-volume-profit technique to determine optimal managerial decisions.

CO5: Compare and contrast the financial statements of firms and interpret the results.

CO6:

Prepare analysis of various special decisions, using relevant management techniques



  
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## Semester wise Course Outcomes

B.Com (Computer Applications)

### Course4C:IncomeTax

#### CourseOutcomes:

Student will be able to-

C01: Acquire the complete knowledge of the tax evasion, tax avoidance and tax planning.

C02: Understand the provisions and compute income tax for various sources.

C03: Grasp amendments made from time to time in Finance Act.

C04: Compute total income and define tax complications and structure.

C05: Prepare and file ITR returns of individual at his own.



  
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## Semester wise Course Outcomes

B.Com (Computer Applications)

Course5C:Business Law

### CourseOutcomes:

Student willableto-

CO1: Understandthelegal environmentofbusiness andlaws ofbusiness.

CO2: Highlightthesecurityaspectsinthe presentcyber-crimescenario.

CO3: Applybasiclegalknowledgeto business transactions.

CO4: Understandthe various provisionsof CompanyLaw.

CO5: Engage critical thinking to predict outcomes and recommend

appropriate action onissuesrelatingto business associations

and legal issues.

CO6: Integrate conceptofbusiness lawwithforeigntrade.



  
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## Semester wise Course Outcomes

B.Com (Computer Applications)

### Course16-A:AdvancedCorporateAccounting

Semester V

#### CourseOutcomes:

Student willableto-

CO1: Understand Corporate Accounting environment

CO2: Record Transactions related to purchase of business, Amalgamation and  
Reconstruction.

CO3: Analyze the situations of Purchase of Business and Liquidation

CO4: Create formulas and calculations relating to Amalgamation, Internal  
Reconstruction and Holding company accounts.

CO5: Acquire skills of Accounting Procedure of Advanced Corporate Accounting  
Environment.



  
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## Semester wise Course Outcomes

B.Com (Computer Applications)

### Course17-A:Software Solutions toAccounting

**Semester V**

**CourseOutcomes:**

Student willableto-

CO1: Understanding the technical environment of accounting software

CO2: Highlight the major accounting software's in India.

CO3: Apply basics of accounting software's into business firms for accounting Transactions.

CO4: Understanding the various versions of Tally and other software's.

CO5: Integrate the concept of different Accounting software for accounting purpose

CO6: Design new approaches for use of accounting software environment.



  
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## Semester wise Course Outcomes

B.Com (Computer Applications)

### Course20-B:Life Insurance With Practice

#### Semester V

##### CourseOutcomes:

Student will able to-

- CO1: Understand the Features of Life Insurance, schemes and policies and insurance Companies in India.
- CO2: Analyze various schemes and policies related to Life Insurance sector
- CO3: Choose suitable insurance policy for given situation and respective persons
- CO4: Acquire Insurance Agency skills and other administrative skills
- CO5: Acquire skills of settlement of claims under various circumstances.



  
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## Semester wise Course Outcomes

B.Com (Computer Applications)

### Course21-B:General Insurance Procedure and Practice

#### Semester V

##### CourseOutcomes:

Student will be able to-

- CO1: Understand the Features of General Insurance and Insurance insurance Companies in India.
- CO2: Analyze various schemes and policies related to General Insurance sector
- CO3: Choose suitable insurance policy under Health, Fire, Motor and Marine Insurances
- CO4: Acquire General Insurance Agency skills and administrative skills
- CO5: Acquire skills of settlement of claims under various circumstances.



  
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**DEPT. OF COMPUTER SCIENCE**

**B.Sc SEMESTER-I**

**COURSE CODE : C1**

**COURSE TITLE: PROBLEM SOLVING IN C**

**Course Objective:**

This course aims to provide exposure to problem-solving through programming. It introduces the concepts of the C Programming language.

**Course Learning Outcomes:**

Upon successful completion of the course, a student will be able to:

- CO 1. Understand the evolution and functionality of a Digital Computer.
- CO 2. Apply logical skills to analyse a given problem
- CO 3. Develop an algorithm for solving a given problem.
- CO 4. Understand 'C' language constructs like Iterative statements, Array processing, Pointers, etc.
- CO 5. Apply 'C' language constructs to the algorithms to write a 'C' language program.

**B.Sc SEMESTER-II**

**COURSE CODE : C2**

**COURSE TITLE: DATA STRUCTURE USING C**

**Course Objectives:**

To introduce the fundamental concept of data structures and to emphasize the importance of various data structures in developing and implementing efficient algorithms.

**Course Learning Outcomes:**

Upon successful completion of the course, a student will be able to:

- CO 1. Understand available Data Structures for data storage and processing.
- CO2. Comprehend Data Structure and their real-time applications - Stack, Queue, Linked List, Trees and Graph
- CO3. Choose a suitable Data Structures for an application
- CO4. Develop ability to implement different Sorting and Search methods
- CO5. Have knowledge on Data Structures basic operations like insert, delete, search, update and traversal
- CO6. Design and develop programs using various data structures
- CO7. Implement the applications of algorithms for sorting, pattern matching etc.



  
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**B.Sc SEMESTER-III**

**COURSE CODE : C3**

**COURSE TITLE: DATABASE MANAGEMENT SYSTEMS**

**Course Objective:**

The objective of the course is to introduce the design and development of databases with special emphasis on relational databases.

**Course Learning Outcomes:**

On completing the subject, students will be able to:

- CO1. Gain knowledge of Database and DBMS.
- CO2. Understand the fundamental concepts of DBMS with special emphasis on relational data model.
- CO3. Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database
- CO4. Model database using ER Diagrams and design database schemas based on the model.
- CO5. Create a small database using SQL.
- CO6. Store, Retrieve data in database.

**B.Sc. SEMESTER-IV**

**COURSE CODE: C4**

**COURSE TITLE: OBJECT ORIENTED PROGRAMMING THROUGH JAVA**

**Course Objective:**

To introduce the fundamental concepts of Object-Oriented programming and to design & implement object oriented programming concepts in Java.

**Course Learning Outcomes:**

At the end of this course student will:

- CO1. Understand the benefits of a well-structured program
- CO2. Understand different computer programming paradigms
- CO3. Understand underlying principles of Object-Oriented Programming in Java
- CO4. Develop problem-solving and programming skills using OOP concepts
- CO5. Develop the ability to solve real-world problems through software development in high-level programming language like Java.



  
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**B.Sc. SEMESTER-IV**

**COURSE CODE: C5**

**COURSE TITLE: OPERATING SYSTEMS**

**Course Objective:**

This course aims to introduce the structure and organization of a file system. It emphasizes various functions of an operating system like memory management, process management, device management, etc.

**Course Learning Outcomes:**

Upon successful completion of the course, a student will be able to:

- CO1. Know Computer system resources and the role of operating system in resource management with algorithms
- CO2. Understand Operating System Architectural design and its services.
- CO3. Gain knowledge of various types of operating systems including Unix and Android.
- CO4. Understand various process management concepts including scheduling, synchronization, and deadlocks.
- CO5. Have a basic knowledge about multithreading.
- CO6. Comprehend different approaches for memory management.
- CO7. Understand and identify potential threats to operating systems and the security features design to guard against them.
- CO8. Specify objectives of modern operating systems and describe how operating systems have evolved over time.
- CO9. Describe the functions of a contemporary operating system.



  
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**B.Sc SEMESTER-V**

**COURSE CODE : C 6A**

**COURSE TITLE: Web Interface Designing Technologies**

**Course Objective:**

- CO 1. Understand and appreciate the web architecture and services.
- CO 2. Gain knowledge about various components of a website.
- CO3. Demonstrate skills regarding creation of a static website and an interface to dynamic website.
- CO 4. Learn how to install word press and gain the knowledge of installing various pluginsto use in their websites.

**B.Sc SEMESTER-V**

**COURSE CODE : C 7A**

**COURSE TITLE: Web Applications Development using PHP& MYSQL**

**Course Objective:**

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

- CO 1. Write simple programs in PHP.
- CO 2. Understand how to use regular expressions, handle exceptions, and validate data usingPHP.
- CO 3. Apply In-Built functions and Create User defined functions in PHP programming.
- CO 4. Write PHP scripts to handle HTML forms.
- CO 5. Write programs to create dynamic and interactive web based applications using PHPand MYSQL.
- CO 6. Know how to use PHP with a MySQL database and can write database driven webpages.



  
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# CBCS / Semester System (w.e.f.2017 – 2018 Admitted Batch)

## Semester – I / English

### A Course in English Language Teaching

**Course Outcomes:** By the end of the course the learner will be able to:

**CO 1:** Prose helps to develop the student's imagination and love for natural objects. To acquaint the students with the writer's style. To give certain facts and lessons through the story. To shape the student's character.

**CO 2:** Poetry can be a powerful teaching tool, helping students improve their literacy. It can also allow writers to express their emotions and allow readers to connect to those emotions. Poetry is also connected to aesthetics, or the exploration of what is beautiful in the world.

**CO 3:** Supplementary Readers are very much helpful in developing the reading skill of the pupils. To improve their skill in silent reading with a reasonable speed.

**CO 4:** Participate in Group Discussions and Debates.

**CO 5:** To face boldly to all kinds of Interviews.

**CO 6:** Demonstrate an understanding of writing skills.

**CO 7:** Confidently use the tools of communication skills.

**CO 8:** Learn basic grammar to face all competitive exams.

# **CBCS / Semester System (w.e.f.2017 – 2018 Admitted Batch)**

## **Semester – II / English**

### **A Course in English Language Teaching**

**Course Outcomes:** By the end of the course the learner will be able to:

**CO 1:** Prose helps to develop the student's imagination and love for natural objects. To acquaint the students with the writer's style. To give certain facts and lessons through the story. To shape the student's character.

**CO 2:** Poetry can be a powerful teaching tool, helping students improve their literacy. It can also allow writers to express their emotions and allow readers to connect to those emotions. Poetry is also connected to aesthetics, or the exploration of what is beautiful in the world.

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**CO 4:** Participate in Group Discussions and Debates.

**CO 5:** To face boldly to all kinds of Interviews.

**CO 6:** Demonstrate an understanding of writing skills.

**CO 7:** Confidently use the tools of communication skills.

**CO 8:** Learn basic grammar to face all competitive exams.



## CBCS / Semester System (w.e.f.2017 – 2018 Admitted Batch)

### Semester – III / English

#### A Course in English Language Teaching

**Course Outcomes:** By the end of the course the learner will be able to:

**CO 1:** Prose helps to develop the student's imagination and love for natural objects. To acquaint the students with the writer's style. To give certain facts and lessons through the story. To shape the student's character.

**CO 2:** Poetry can be a powerful teaching tool, helping students improve their literacy. It can also allow writers to express their emotions and allow readers to connect to those emotions. Poetry is also connected to aesthetics, or the exploration of what is beautiful in the world.

**CO 3:** Supplementary Readers are very much helpful in developing the reading skill of the pupils. To improve their skill in silent reading with a reasonable speed.

**CO 4:** Participate in Group Discussions and Debates.

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**CO 8:** Learn basic grammar to face all competitive exams.



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# **CBCS / Semester System (w.e.f.2018 – 2019 Admitted Batch)**

## **Semester – I / English**

### **A Course in English Language Teaching**

**Course Outcomes:** By the end of the course the learner will be able to:

**CO 1:** Prose helps to develop the student's imagination and love for natural objects. To acquaint the students with the writer's style. To give certain facts and lessons through the story. To shape the student's character.

**CO 2:** Poetry can be a powerful teaching tool, helping students improve their literacy. It can also allow writers to express their emotions and allow readers to connect to those emotions. Poetry is also connected to aesthetics, or the exploration of what is beautiful in the world.

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**CO 5:** To face boldly to all kinds of Interviews.

**CO 6:** Demonstrate an understanding of writing skills.

**CO 7:** Confidently use the tools of communication skills.

**CO 8:** Learn basic grammar to face all competitive exams.

# CBCS / Semester System (w.e.f.2018 – 2019 Admitted Batch)

## Semester – II / English

### A Course in English Language Teaching

**Course Outcomes:** By the end of the course the learner will be able to:

**CO 1:** Prose helps to develop the student's imagination and love for natural objects. To acquaint the students with the writer's style. To give certain facts and lessons through the story. To shape the student's character.

**CO 2:** Poetry can be a powerful teaching tool, helping students improve their literacy. It can also allow writers to express their emotions and allow readers to connect to those emotions. Poetry is also connected to aesthetics, or the exploration of what is beautiful in the world.

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**CO 8:** Learn basic grammar to face all competitive exams.

CBCS / Semester System (w.e.f.2018 – 2019 Admitted Batch)

Semester – III / English

A Course in English Language Teaching

**Course Outcomes:** By the end of the course the learner will be able to:

**CO 1:** Prose helps to develop the student's imagination and love for natural objects. To acquaint the students with the writer's style. To give certain facts and lessons through the story. To shape the student's character.

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## **CBCS / Semester System (w.e.f.2019 – 2020 Admitted Batch)**

### **Semester – I / English**

#### **A Course in Communication and Soft Skills**

**Course Outcomes:** By the end of the course the learner will be able to:

**CO 1:** Use grammar effectively in writing and speaking.

**CO 2:** Demonstrate the use of good vocabulary.

**CO 3:** Acquire ability to use Soft Skills in professional and daily life.

**CO 4:** Demonstrate an understanding of writing skills.

**CO 5:** Confidently use the tools of communication skills.

**CO 6:** Learn basic grammar to face all competitive exams.

## **CBCS / Semester System (w.e.f.2019 – 2020 Admitted Batch)**

### **Semester – II / English**

#### **A Course in English Language Teaching**

**Course Outcomes:** By the end of the course the learner will be able to:

**CO 1:** Prose helps to develop the student's imagination and love for natural objects. To acquaint the students with the writer's style. To give certain facts and lessons through the story. To shape the student's character.

**CO 2:** Poetry can be a powerful teaching tool, helping students improve their literacy. It can also allow writers to express their emotions and allow readers to connect to those emotions. Poetry is also connected to aesthetics, or the exploration of what is beautiful in the world.

**CO 3:** Supplementary Readers are very much helpful in developing the reading skill of the pupils. To improve their skill in silent reading with a reasonable speed.

**CO 4:** Participate in Group Discussions and Debates.

**CO 5:** To face boldly to all kinds of Interviews.

**CO 6:** Demonstrate an understanding of writing skills.

**CO 7:** Confidently use the tools of communication skills.

**CO 8:** Learn basic grammar to face all competitive exams.

## **CBCS / Semester System (w.e.f.2019 – 2020 Admitted Batch)**

### **Semester – III / English**

#### **A Course in English Language Teaching**

**Course Outcomes:** By the end of the course the learner will be able to:

**CO 1:** Prose helps to develop the student's imagination and love for natural objects. To acquaint the students with the writer's style. To give certain facts and lessons through the story. To shape the student's character.

**CO 2:** Poetry can be a powerful teaching tool, helping students improve their literacy. It can also allow writers to express their emotions and allow readers to connect to those emotions. Poetry is also connected to aesthetics, or the exploration of what is beautiful in the world.

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**CO 8:** Learn basic grammar to face all competitive exams.



  
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## **CBCS / Semester System (w.e.f.2020 – 2021 Admitted Batch)**

### **Semester – I / English**

#### **A Course in Communication and Soft Skills**

**Course Outcomes:** By the end of the course the learner will be able to:

**CO 1:** Use grammar effectively in writing and speaking.

**CO 2:** Demonstrate the use of good vocabulary.

**CO 3:** Acquire ability to use Soft Skills in professional and daily life.

**CO 4:** Demonstrate an understanding of writing skills.

**CO 5:** Confidently use the tools of communication skills.

**CO 6:** Learn basic grammar to face all competitive exams.

## **CBCS / Semester System (w.e.f.2020 – 2021 Admitted Batch)**

### **Semester – II / English**

#### **A Course in Reading and Writing Skills**

**Course Outcomes:** By the end of the course the learner will be able to:

**CO 1:** Use reading skills effectively.

**CO 2:** Comprehend different texts.

**CO 3:** Interpret different types of texts.

**CO 4:** Analyze what is being read.

**CO 5:** Build up a repository of active vocabulary.

**CO 6:** Use good writing strategies.

**CO 7:** Improve writing skills independently for future needs.

**CBCS / Semester System (w.e.f.2020 – 2021 Admitted Batch)**

**Semester – III / English**

**A Course in Conversational Skills**

**Course Outcomes:** By the end of the course the learner will be able to:

- CO 1: Speak fluently in English.
- CO 2: Participate confidently in any social interaction.
- CO 3: Face any professional discourse.
- CO 4: Demonstrate critical thinking.
- CO 5: Participate in Group Discussions and Debates.
- CO 6: To face boldly to all kinds of Interviews.



  
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## **CBCS / Semester System (w.e.f.2021 – 2022 Admitted Batch)**

### **Semester – I / English**

#### **A Course in Communication and Soft Skills**

**Course Outcomes:** By the end of the course the learner will be able to:

**CO 1:** Use grammar effectively in writing and speaking.

**CO 2:** Demonstrate the use of good vocabulary.

**CO 3:** Acquire ability to use Soft Skills in professional and daily life.

**CO 4:** Demonstrate an understanding of writing skills.

**CO 5:** Confidently use the tools of communication skills.

**CO 6:** Learn basic grammar to face all competitive exams.

## **CBCS / Semester System (w.e.f.2021 – 2022 Admitted Batch)**

### **Semester – II / English**

#### **A Course in Reading and Writing Skills**

**Course Outcomes:** By the end of the course the learner will be able to:

**CO 1:** Use reading skills effectively.

**CO 2:** Comprehend different texts.

**CO 3:** Interpret different types of texts.

**CO 4:** Analyze what is being read.

**CO 5:** Build up a repository of active vocabulary.

**CO 6:** Use good writing strategies.

**CO 7:** Improve writing skills independently for future needs.

# CBCS / Semester System (w.e.f.2021 – 2022 Admitted Batch)

## Semester – III / English

### A Course in Conversational Skills

**Course Outcomes:** By the end of the course the learner will be able to:

**CO 1:** Speak fluently in English.

**CO 2:** Participate confidently in any social interaction.

**CO 3:** Face any professional discourse.

**CO 4:** Demonstrate critical thinking.

**CO 5:** Participate in Group Discussions and Debates.

**CO 6:** To face boldly to all kinds of Interviews.



  
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