Dayanand College,Hisar

Affiliated to Guru Jambheshwar University of Science & Technology, Hisar
Under DAV College Managing Committee, New Delhi
(Accredited with Grade 'A' by NAAC)

Programme Outcome, Programme Specific Outcome, Course Outcome

INDEX

Sr. No	Department	Page No.
1	Biotechnology	5-11
2	Botany	12-16
3	Chemistry	17-20
4	Computer Science	21-26
5	Computer Application	27-40
6	Mathematics	41-50
7	Physics	51-55
8	Electronics	56-64
9	Zoology	65-68
10	Geography	69-83
11	Psychology	84-88
12	Physical Education	89-91
13	History	92-94
14	Defense Studies	95-97
15	Economics	98-102
16	Political Science	103-105
17	Public Administration	106-108
18	Music	109-112
19	B.M.C.	113-119
20	B.B.A.	120-125
21	Commerce	126-143
22	Sanskrit	144-145
23	English	146-147
24	Hindi	148-150

DAYANAND COLLEGE, HISAR

PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES, COURSE OUT OUTCOMES.

Mechanism of Communication to students and Teachers :-

- The importance of programme outcomes, Programme Specific Outcomes and course out comes has been communicated to deans of various faculties, HOD's and teachers in various meetings of IQAC and Staff council meeting.
- Hard Copy of Syllabus and PO, PSO and CO are available in every department for reference to teachers and students.
- Learning outcomes of various Programmes and courses are displayed on notice boards of each department and also available on college website www.dnc.ac.in
- The students are also made aware of PO, PSO and CO in their classes.

PROGRAMME OUTCOME

Three year Degree Programee in Bachlor of Science.

- B.Sc. :- Bachlor of Science (B.Sc.) is a three year degree programme after 12th. It offers theoretical as well as practical knowledge and information about different subjects like Physics, Chemistry , Mathematics, Zoology, Botany, Biotechnology, Electronics, Computers and Compulsory subjects like Environmental studies, , Sanskrit, English and Hindi at various levels. The students have options for various streams. Students of non-medical stream have options for Physics, Chemistry, Mathematics, Electronics and Computers etc., whereas students of Medical stream have options for Botany, Zoology, Chemistry and Biotechnology. This programme is beneficial for students with interest in science, mathematics, biology etc. The Programme and courses are also beneficial for students who wish to make careers in medical science, research and technology. Following are the programme outcomes.
- This Course makes the base for students who have interest in science and wish to make career in science in future.
- The Courses develop scientific temper and scientific attitude with logical thinking in various aspects of daily life.
- The Programme and courses opted by students also prepared them to make career in teaching and research.

PROGRAMME SPECIFIC OUTCOMES :-

(A) Three Years Degree Programme in B.Sc. Medical :-

- Students studying in B.Sc. Medical, acquire the knowledge of life sciences like botany, zoology, biotechnology and chemistry.
- Students are able to define, explore and explain the structure, function, metabolism of various groups of plants, animals and microorganisms including bacteria and viruses.
- Students gets the theoretical and practical knowledge of subjects like, Botany, Zoology, Chemistry and Biotechnology.
- The also develop awareness about environment and computer skills by compulsory subjects of Environmental Studies and Computer Awareness.
- Communication Skills of the students also increased by compulsory subjects of Hindi and English.
- They are able to experience with various instruments and techniques used in laboratories during practicals. This will also help them in future in research and industrial sector.
- Students communicate the biological knowledge for their career advancement, to society at various levels. It will be more beneficial to society in Scientific development and hence growth and development of nation as a whole.
- After completion of this programme, students may go for higher studies like M.Sc., and research etc.
- Students after this prgramme have the option to prepare for various competitive exams like Civil Service, IFS, CDS, Indian Army, Bank PO, Income Tax Department, Pollution Control Board etc.
- Science graduates can serve in industries like Electronics Equipments, Electrical and Pharmaceuticals.
- Students can also set up their own small or large industrial unit , startup etc.
- After completing this programme, students have chances to move in education sector or in multinational Companies to make their future career.
- Students, after completing this programme may move to agriculture sector, marketing sector, and in various government sectors.
- Students get the knowledge about the structure, function and development of living organisms of molecular, cellular, organismic level and ecological level.
- Students inculcate the ability for the application of acquired knowledge in various day to day life activities like Health, Sanitization, Immunization, Nutritious diet.
- They apply ethical principles to biological sciences and research.
- Students opting for Biotechnology can make their career in Pharmaceuticals, Food Processing industries, Hospitals and Agriculture biotechnology.
- Biotechnology students can move to serum/vaccine institutes, nanoparticle research and environmental biotechnology.

DEPARTMENT OF BIOTECHNOLOGY

Programme Specific Outcomes

The course describes principles and applications of molecular biology methods with an emphasis on the application of recombinant DNA technology to animals, plants and microbes.programme specific outcome of bachelor degree of biotechnology is to produce competent biotechnologists who can employ and implement their knowledge in premium processes.

Programme Outcomes of Three Year B.Sc. Biotechnology

B.Sc. Biotechnology

Three Year B.Sc. Biotechnology Programme is formulated for developing competent Biotechnologist for which significant job opportunities exist in this country. Students will gain and apply knowledge of scientific concepts such as Molecular Biology, Genetics, Microbiology, Biochemistry and Bioinformatics .related to the field of Biotechnology.

Programme class vise

B.Sc. Biotechnology I

The students are familiarized with basic aspects with subjects required to study biotechnology. This is the very fundamental required on which they build their knowledge of the subjects.

B.Sc. Biotechnology II

During this year as the students slowly climb the ladder of their career in this field, they are introduced to more advanced knowledge of various courses of biotechnology.

B.Sc. Biotechnology III

Finally the students are made to learn and understand various aspects of biotechnology on which they will build the career like post graduation.

Course Outcomes: Department of Biotechnology

Semester I:

Introduction to Biotechnology and Biochemistry: Students will gain knowledge and understand norms and ethics in the field of biotechnology. Students familiarized with scope and importance of biotechnology and the terms associated with plant tissue culture and recombinant technology etc.

The study of biochemistry helps to understand the chemical concepts of biology.

Semester II:

Microbiology and Biochemistry: Students will get some basic knowledge about microorganisms which will be useful in their projects and other practical applications. To understand the scope and applications of microbiology in various fields like medical, food, industrial microbiology.

In this course of biochemistry students study about proteins and enzymes. This study reveals the students with knowledge of how enzymes work and factors affecting their activity.

Semester III:

Molecular biology and Bioanalytical techniques: The subject provides basic concepts of genes and helps to understand the molecular mechanisms of living forms.

It will help the students to develop the analytical skills using different instruments and other techniques in biotechnology.

Semester IV:

Recombinant technology and Immunology: The subject gives knowledge about how to isolate and amplify gene. It also provides understandings of cloning methodologies and applications of rDNA technology in various fields.

Immunology deals with the study of basic immune system and how it acts inside the body.

Semester V:

Plant Biotechnology and Microbial Biotechnology: It is a tool of research, measure industrial importance in the area of plant propagation, disease elimination and production of secondary metabolites.

It gives basic idea regarding the isolation of industrially important microbes fermenter design and downstream processing of the product.

Semester VI:

Animal Biotechnology and Bioinformatics: It gives basic knowledge of techniques of cell culture, characterization and use of animal cell lines in production of vaccine and other valuable recombinant products.

The study of Bioinformatics reveals the students about the different methods of molecular analysis of using software which further enhances use of tools in drug designing and phylogenetic analysis.

PROGRAMME OUTCOMES 2 Year Degree M.Sc. Biotechnology:

Programme outcome of M.Sc Biotechnology is to produce competent biotechnologist's who can employ and implement their knowledge base in premium processes and applications which will profoundly influence or utilized for existing paradigm of agriculture, industry and healthcare. Students will exhibit contemporary knowledge in Biotechnology and students will be eligible for doing jobs in various sectors of pharmaceutical and biotechnological industry.

PROGRAMME SPECIFIC OUTCOMES:

- Students will be able to design and conduct experiments, analyze and interpret data for investigating problems in Biotechnology and allied fields.
- Higher studies (M.Phil, Ph.D) can be pursued in order to attain research positions. Various examinations such as CSIR-NET, ARS-NET GATE, ICMR, DBT for promising career in research.
- Some of the major pharmaceutical and drug companies hire biotechnological professionals in R/D sectors.
- Beside Industrial sector there are ample opportunities in academics as well.

COURSE OUTCOMES:

SEMESTER I

Introductory Biotechnology (MBL-511)

- This course will focus on basic concepts of Biotechnology, including important terminology and definitions.
- All the important phenomena and techniques related to field of Biotechnology are covered under this coursework.

Biomolecules and Metabolism (MBL-512)

- Students will be imparted complete knowledge about structure and function of different
- biomolecules (proteins, lipids, nucleic acids, and carbohydrates) found in living cells.
- Also the course will provide the knowledge how biomolecules are synthesized and
- metabolized inside living cells.

Cell Biology (MBL-513)

- Specific knowledge will be imparted about role of cell division and its regulation on diseases like cancer.
- Along with this the course will provide students with essential concepts of different processes involved in development of animals, along with genetic control of development.

General & Applied Microbiology (MBL-514)

- This course will aid students to acquire skills and competency in microbiological laboratory practices applicable to microbiological research or clinical methods, including accurately reporting observations and analysis.
- Students will gain awareness about the microbes present in the environment and their impact.
- Course will provide practical knowledge about different types of bacteria, virus and fungi found in environment.
- Course will provide sound knowledge about different metabolic mechanism occurring inside microbes.

SEMESTER II

Theory & Applications of Biotechniques (MBL 521)

- Bioanalytical tools are cell-based bioassays that give a measure of the effect and presence of known and unknown chemicals in complex environmental samples.
- At the end of this course students would be able to understand the principle, working,
- maintain and calibrations of bioanalytical tools and techniques for industrial and research purpose.
- Specifically students will be able to learn underlying principle of techniques such as
- electrophoresis, microscopy, spectroscopy, centrifugation and chromatography.

Moleular Biology (MBL522)

- Course on molecular Biology & genetics will enhance the knowledge base about functional and structural organization of nucleic acid.
- The course particularly aims at understanding structure , synthesis and replication of nucleic acids.
- After completing the course on genetics complete knowledge as how genes are transmitted in plants and animals from one generation to another will be imparted. Along with this, the course will highlight the role of genetics / mutations in animal and plant breeding.

Fundamentals of Immunology (MBL 523)

- The course will provide technical knowledge as to how different diseases are caused and various responses mediated by living cells to combat pathogen attack.
- At The course will provide sound knowledge of how immune system deals with various
- pathogens, different processes and cell types involved in prevention of disease.
- Along with this the students will become aware about concept, synthesis and action
- mechanism of vaccines.

Plant Cell Tissue and Organ culture (MBL 524)

- Plant Cell and tissue culture remains to be one of the most prominent fields of biotechnology.
- The course will provide complete exposure as how plant and animal cells are isolated, cultured and genetically manipulated in laboratory.
- Also the course will provide information hoe cell suspension cultures can be utilized for molecular farming for commercially synthesizing products such as vaccines, hormones, proteins, enzymes, etc.

Fermentation Technology (MBL 525)

- This course emphasize on study of production of Biomass (viable cellular material) production of extracellular metabolites (chemical compounds)
- It also covers the production of intracellular components (Enzymes and other proteins) and transformation of substrate.

SEMESTER III

Genetic Engneering (MBL 531)

Learning outcomes of this course are technical know-how on versatile techniques in recombinant DNA technology.

 An understanding on application of genetic engineering techniques in basic and applied experimental biology and proficiency in designing and conducting experiments involvinggenetic manipulation.

 The course will provide techniques involved in production of transgenic plants and animals and their pros and cons.

Enzymology & Enzyme Technology (MBL 532)

- Upon successful completion of this course, the student will learn, the major classes of
- enzyme and their functions in the cell.
- The course also provides information pertaining to role of co-enzyme cofactor in enzyme catalyzed reaction, properties of enzymes and regulation of biochemical pathways.
- Differentiate between equilibrium and steady state kinetics and analyzed simple kinetic data and estimate important parameter (Km. Vmax, Kcat etc).

Molecular Genetics (MBL 533)

- Analysis of conceptsin Classical and modern gene concepts**.**
- Basic theory of classical genetics
- Distinguisment between basic and fundamental theories of molecular genetics
- Detailed account of DNA and gene including gene skepticism.

Introductory BioInformatics (MBL 534)

- Bioinformatics is an interdisciplinary area that is the interface between the biological and computational sciences. The primary goal of this course is to uncover how various tools and techniques of bioinformatics can be utilized in studies pertaining to macromolecules (DNA, RNA, protein).
- After completing this course students will be able to analyze, interpret and study biological data (sequence, structure, etc) stored in various databases available on internet.

SEMESTER IV

Agriculture Biotechnology & IPR (MBL 541)

- The student will acquire knowledge about the range of approaches to manipulate and Improve plants. Students will demonstrate the ability to develop, interpret, and critically evaluate modern approaches to scientific investigation in field of agriculture.
- The course will also provide information as how to develop and use biofertilizers in agriculture along with utilization of microbes.

Elective Subjects

Environmental Biotechnology (MBL 542)

- This coursework includes study of Biomarkers Bioremediation Bioenergy and Biotransformation.
- It gives the complete knowledge regarding pollutants contaminationg land air and water and gives the detail preventive measures for healthy ecosysytem.

Food Biotechnology (MBL 543)

- It offers various ways to improve the processing of raw materials to convert them into high nutritional value food products.
- Postgraduates in food technology can take up jobs in different domains such as food industries such as dairy ,sea food food processing companies; catering establishments; soft drink manufacturing firms; spice, cereal , rice and sugar mills. Quality control organizations, food research laboratories; and packaging industries. food technologist can also be selected as Food inspector , Food security officer food scientist, food quality control manager/ supervisor, sensory evaluator , and so on.

Medical Biotechnology (MBL 544)

Having successfully completed this course student will be able to:

- Biological training to solve problems related to health and healthcare that are globally relevant and based on ethically sound principles.
- Comprehend about the techniques, skills, and modern engineering tools necessary for medical practice.
- To know how stem cells are utilized in medical applications.

Genomics and proteomics (MBL 545)

- After completion of this course student will be able to completely understand structure and organization of genomics and proteomics.
- How their study can be utilized in the field of agriculture, eco toxicology, human health.

Principles of Nanobiotechnology (MBL 546)

- To foundational knowledge of the Nanoscience and related fields.
- To make the students acquire an understanding the Nanoscience and Applications
- To help them understand in broad outline of Nanoscience and Nanotechnology.

Dissertation

This course will include allotment of an individual research work to each student to be carried out in fourth semester. This will not only enhance knowledge base of students but also provide them exposure as to how to conduct and carry out a research based task. Students will also learn how to compile and interpret results.

****

DEPARTMENT OF BOTANY

COURSE OUTCOMES

B.Sc. Medical with Botany

SEMESTER - I

Botany Paper - I Course Name – Biodiversity of Microbes, Algae and Fungi
(Course Code - BOT 101 L)

The aim of this course is to provide information about the characteristics, structure, life cycle, reproduction and functions of bacteria, viruses, algae fungi and lichens. The paper also discusses the economics importance of these micro organisms and their role in human welfare. It also gives the information about the distribution of these groups in Ecosystem and effects of various environmental factors on these micro organisms. Practicals provide the skills to recognize and understand the structure of these groups of microbes.

Botany Paper - II Course Name – Biodiversity of Archegoniates
(Course Code - BOT 102 L)

The course gives the knowledge about characteristics, distribution, structure, life cycle, reproduction and functions of fossils archegoniates as well as Bryophytes, Pteridophytes and Gymnosperms. The Economic importance and their role in human welfare will also be discussed in this paper. Importance of Bryophyte is soil formation, maintaining soil moisture and recycling of nutrients will be understood. Role of these groups of plants in developmental research, genetics and cytology will also be studied in this course. It also makes the students aware about the ecological importance and conservation of these groups of plants.

SEMESTER - II

Botany Paper – IV, Course Name – Plant Ecology
(Course Code - BOT 201 L)

The aim of this course is to provide knowledge of various ecological and environmental factors like light, temperature, rainfall, soil etc. and effects of these factors on structure and functions of plants. Paper also provides information about various morphological, anatomical modifications developed by plants to fight against stressful environmental conditions. The paper also give information about structure, function, energy flow in Ecosystem, Biogeochemical cycles, Plants successions and various Phytogeographic regions of India. This course also give knowledge about the cause and consequences of air, water, soil pollution and various ways to control pollution.

Botany Paper –V, Course Name – Plant Taxonomy
(Course Code - BOT 202 L)

Plant taxonomy represents a study of identification, nomenclature and classification of flowering plants on the basis of various characteristics. It is useful in visual identification, systematic

arrangements of plants in different families. Students get chance to visit local flora and identifying the plants in their surroundings. It also gives information about economic importance of plants and their role in human welfare. Students are allowed to understand various key methods and principles of major pattern of evolution of seed plants.

SEMESTER - III

Botany Paper –VII, Course Name – Plant Anatomy

(Course Code - BOT 301 L)

The course deals about the various types of plant tissues and detailed study of internal structures of root, stem, and leaf of flowering plants. The students are made to aware about the role of anatomy in solving taxonomic and phylogenetic problems. It also gives the information, how secondary growth takes place in higher plants and the process of wood formation. Paper reveals the knowledge how various kinds of anatomical adaptations are developed against water stress, salt stress and temperature stress.

Botany Paper -VIII, Course Name – Plant Embryology

(Course Code - BOT 302 L)

The course is helpful in understanding the structure of flowers, floral parts of various families of angiosperms. It also gives knowledge of structure of anthers, pollens ovules and placentation types. The mechanism and process of pollination, fertilization, seed formation and dispersal of seeds can be understood through this course.

Skill Enhancement Course

Course Name – Ethnobotany

(Course Code - BOT 304 L)

Ethnobotany is an inter disciplinary science. The paper gives information about the use of plants in ancient times and by tribals. It gives knowledge about food plants, intoxicants plants, beverages, oil plants used by various tribes of India and by ancient local inhabitants in ancient and present time. It also gives information about the plants used in rituals, religious, ceremonies, temples and sacred places. Paper gives knowledge about the medicinal and herbal plants used by tribes and ancient Indian society and how to collect and preserve specimen of such plants.

Skill Enhancement Course

Course Name – Bio fertilizers

(Course Code - BOT 305 L)

The skill enhancement course gives information about general accounts of micro organisms used as bio fertilizers. The students come to know about characters, classification and factors affecting growth of micro organisms used as bio fertilizers. After successful completion of course students come to know about green manuring, organic farming. How to make bio compost and vermin compost. They also learn about the how to recycle the municipal, agricultural and industrial waste and field applications of biocompost and vermicompost. On successful completion of the

course, the learners comes to know about the identification importance of bacterial, algal, fungal bio fertilizers and how to assess the quality control of bio fertilizers.

Skill Enhancement Course
Course Name – Mushroom Culture Technology
(Course Code - BOT 306 L)
After successful completion of this course, the students will come to know about technology and infrastructure required for cultivation of appropriate varieties of edible mushrooms. They will also learn about nutritional and medicinal values of mushrooms and factors required for low cost technology in mushroom production. Students will learn about various food prepared from mushrooms and also short term and long term storage of mushroom food. They will also come to know about the commercialization and marketing of mushroom foods.

Skill Enhancement Course
Course Name – Plant Diversity and Human welfare
(Course Code - BOT 307 L)
After successful completion of this course the students will come to know about diversity of various groups of lower and higher plants including microbes. They will also learn about the uses of these groups for welfare of human beings like in agriculture, industries medicine etc. Students come to know about the factors responsibilities for loss of plant diversity and various management practical for bio diversity awareness programmes. Students get knowledge of ornamental plants, fruits, nuts, crops and wood yielding plants etc.

SEMESTER - IV
Botany Paper -X, Course Name – Plant Physiology
(Course Code - BOT 401 L)
Upon completion of this course, the students will be able to impart an insight into various plant water relations, significance and importance of transpiration, guttation and root pressure. The students will learn about various minerals, micro nutrients and macronutrients of plants. Their role and transport mechanism. The Students acquire basic knowledge about growth development, and role of growth regulators. The practical paper of this course equip, the students with skills and techniques related to plant physiology so that they design their own experiments.

Botany Paper -XI, Course Name – Plant Metabolism
(Course Code - BOT 402 L)
This course aims to educate students about various metabolism pathways in plant during photosynthesis, respiration, nitrogen fixation and lipid synthesis, leading to formation of significant molecules and their catabolism. It focus upon the vitral roles of Metabolites. The students will enrich themselves with phenomenon of metabolism of primary and secondary

metabolites and their role in plants. Students are upgraded in analytical skills, practical knowledge and instrumentation related in plant metabolism.

SEMESTER - V
Discipline Specific Elective Botany Paper -I
Course Name – Cell Biology
(Course Code - BOT 501 L)
The objective of this course to impart an insight of prokaryotic and eukaryotic cell structures, types and process of cell divisions. This course helps the students to develop a firm knowledge to cell biology, structure and functions of cell organelles cell wall and cell membrane. On completion of this course students will be able to learn about the discovery of cell, cell theory cell cycle etc.

Discipline Specific Elective Botany Paper -II
Course Name – Molecular Biology
(Course Code - BOT 502 L)
Study of Molecular Biology helps the students to find out about structure, synthesis and functions of various molecular of life. It tells, how molecular like DNA, RNA, proteins, lipids, carbohydrates etc. form the vary basics of life. The paper gives the information about the genetic control of enzyme and protein synthesis, expression of genes in prokaryotes and eukaryotes. The students also learned about various techniques and role of microscopy in studying molecular biology.

Discipline Specific Elective Botany Paper -I
Course Name – Analytical Techniques in Plant Sciences - I
(Course Code - BOT 504 L)
This discipline specific elective course helps the students in understanding various imaging, electron microscopy, cell fractionating and radioisotope, spectrophotometry techniques used in cell and molecular biology. Learners will come to know about various kinds of microscopy including their applications in research and industry. Students will learn about cell fractionation, centrifugation, principles and biological applications of spectrophotometry and auto radiography. The course is very helpful in higher studies and research.

Discipline Specific Elective Botany Paper -II
Course Name – Analytical Techniques in Plant Sciences - II
(Course Code - BOT 505 L)
This discipline specific elective course help the students to understand techniques of chromatography, their principles and applications in research and higher studies. Course also gives information and X-ray crystallography and nucleic acids. After completion of this course, the students will come to know about basics in biostatistics, data analysis using mean, mode,

median, standard deviating chi square etc. It will be useful in agriculture research and advance studies.

SEMESTER-VI
Discipline Specific Elective Botany Paper –IV
Course Name – Economic Botany
(Course Code - BOT 601 L)
After completing the course the graduates comes to understand about the origin, cultivation and importance of crops like wheat, rice, gram, pea, soyabean. Students also comes to about cultivation, morphology, importance and uses of spice yielding, oil yielding fiber yielding and beverage plants and their economic uses.

Discipline Specific Elective Botany Paper –V
Course Name – Biotechnology
(Course Code - BOT 602 L)
After completing this course the students comes to know about basics of biotechnology like plant cell and tissue culture, recombinant DNA techniques, molecular DAN Markers etc. They also know about hybridoma technology, monoclonal antibodies and various diagnostic techniques, ELISA immunodetection etc. All these techniques help in further research and molecular diagnostic pathological laboratories.

Discipline Specific Elective Botany Paper –IV
Course Name – Genetics
(Course Code - BOT 604 L)
On completion of this course students will come to know how study of genetics started, role of earliest geneticist and laws of heredity. Students also come to know about mechanism and types of inheritance. They get aware of, how characters passes from one generation to other and role of linkage, crossing over, mutations and polyploidy in improvement of crops. This study is helpful in agriculture research, plant breeding and further studies in plant science.

Discipline Specific Elective Botany Paper –V
Course Name – Plant Breeding
(Course Code - BOT 605 L)
This course makes the students aware about objectives and methods of plant breeding and its role in improvement of crops. It also gives information about various crops developed through plant breeding and how the principles of plant breeding can be applied for further improvement of crops, disease resistance, stress tolerance etc. The paper is very helpful in further research and higher studies in agriculture science.

****

DEPARTMENT OF CHEMISTRY

B.Sc Medical and Non- Medical with Chemistry

Program Outcome

Chemistry

1. Chemistry makes our world more colourful, more efficient, more reliable and safer. Curing of cancer to common cold involves chemicals.
2. Pharmaceuticals, Cosmetics, Body care products, Safety air bags, brake fluids, baking soda, R.O system, insecticides, detergents, cups, plates, tyres, cement, paints, tiles, nylon, toothbrush, paste, fertilizers, utensils etc, every material we use is a product of chemistry.
3. After the completion of B.Sc students have the option for higher studies i.e. M.Sc and then join PhD, can also join PSU's like DRDO, ISRO, ONGC etc for their better growth.
4. After higher studies they can join as a scientist and can also go for professional jobs.
5. They can join as a engineer in Indian Oil Corporation, Mining, as analyst in various industries, can also opt for civil services exams.
6. Students of Chemistry have an ability to apply knowledge of chemistry in their daily life and can make their life easier.
7. Chemistry students have also knowledge about the working of Fire Extinguisher.
8. They may employ as a chemist in various fields.

Program Specific Outcomes

1. The students are acquiring knowledge of Chemical Thermodynamics, Kinetics, Electrochemistry, Organic synthesis, spectrocscopy and skill in industrial chemistry.
2. They get training to prepare soaps and candles on small scale so they can pursue industrial carrier.
3. Chemistry plays an important role in the discovery of highly explosive material like TNT etc.
4. Phonographs records are made up of polyvinyl chloride have added to our pleasure for listening to music.
5.
6. Chemistry also led to the discovery of preservatives.
7. Life savings drugs like cisplatin and taxol are used to cure cancer and AZT FOR AIDS.
8. New chemicals replaced CFC used in refrigerators.

Course Outcome

The chemistry course curriculum for the undergraduates includes the main areas of chemistry: organic, inorganic, physical and fuel chemistry. The purpose of the program is to provide the key knowledge base and laboratory resources to prepare students for careers as professionals in the field of chemistry. The department of chemistry works towards the development of a firm foundation in the fundamentals and application of current chemical and scientific theories. The students are taught how to design and carry out scientific experiments as well as accurately record and analyze the results of such experiments. The course is so designed that the students understand the central role of chemistry in our society and become potent enough to explore new areas of research both in chemistry and in allied fields of research and technology.

Semester l	Course: Atomic Structure, Bonding, General Organic Chemistry and Aliphatic Hydrocarbons (CCL-104 & CCL-105) The course aims at making the students understand the behaviour and interactions between matter and energy at both the atomic and molecular level. The students are taught to predict atomic structure, chemical bonding and molecular geometry based on accepted models. Students are also expected to learn the physical and chemical properties of common functional groups.

Semester ll	Course: Chemical Energetic, Equlibria and Functional Organic Chemistry (CCL-204 & CCL-205) The course lays an emphasis on physical and functional organic chemistry. The students are provided an insight to the kinetic aspects of chemical reactions, reaction equilibria, thermodynamics, nomenclature and classification of organic compounds and named organic reactions. The students are become able to understand the concept of activation energy, steady state, and zero, first and second order rate laws
Semester lll	Course: Solutions, Phase Equilibrium, Conductance, Electrochemistry and Functional Group Organic Chemistry (CCL-304 & CCL-305) This course has been designed to impart an insight into the basic principles of phase equilibrium, electrochemistry and functional group chemistry. The students will be made to understand the properties of ideal and non ideal solutions, the basic concepts of electrochemistry and its applications. They will also be taught the preparation and reactions of acids and amines along with the classification and structure of common organic compounds.
Semester lV	Course: Transition metals & Coordination Chemistry, States of Matter and Chemical Kinetics (CCL-404 & CCL-405) This course is designed to impart knowledge regarding coordination compounds, various states of matter and kinetics of chemical reactions. In this course the students are expected to lean about the behaviour of transition and inner transition elements. Students will develop a comprehensive knowledge of kinetic theory of gases, concepts of condensed states of matter and the formation and stability of coordination complexes.
Semester V	Course: Chemistry of main group elements, theories of acid and base-l (CCL-503B & CCL-504B) This course provides students with a detailed knowledge of the fundamental aspects of the subject while it focuses on the current topics, e.g. occurrence of metals, Ellingham diagram, hydrometallurgy, HSAB principle, solvent system, complex formation. Students are expected to understand the numerous functions of s & p block elements and acid- base concepts.

Semester VI	Course: Organometallics and Bioinorganic Chemistry & Polynuclear Hydrocarbons and UV, IR Spectroscopy (CCL-603A &CCL-604A) The course provides students with a detailed knowledge of the fundamental aspects of the subjects while it focuses on the current topics. E.g. metal enzymes in metabolism and synthesis, technical application of hydrogenases or metal containing pharmaceuticals. Students are expected to understand the numerous functions of metal ions and inorganic materials in biology.

****

DEPARTMENT OF COMPUTER SCIENCE

Programme Outcomes, Program Specific Outcomes, Course Outcomes

Course Outcomes:

1. To produce employable IT workforce, that will have sound knowledge of IT and business fundamentals that can be applied to develop and customize solutions for Small and Medium Enterprises (SME)
2.To develop skilled manpower in the various areas of information technology like:
Data base management, Software Development, Computer-Languages, Software engineering, Web based applications etc.

The Program enables the students to:

a) Understand the fundamental concepts of Computers, Business environment and IT Applications in Business
b) Successfully understand & analyze technical data to reach actionable conclusions, including technological solutions to the business.
c) Learn technologies & IT languages, so the business problems could be addressed.
d) Develop competent technical writing skills so as to enable the graduate to communicate business ideas to senior management and general public.
e) To identify and sharpen their IT/ programming skills.

Learning Outcomes

Our graduates will have

a) The necessary technical, scientific as well as basic managerial and financial procedures to analyze and solve real world problems within their work domain
b) Clarity on both conceptual and application oriented skills in commerce, Finance & Accounting and IT Applications in Business context.
c) Improved communication and business management skills, especially in providing tech support.
d) Awareness on ethics, values, sustainability and creativity aspects.
e) The ability and the mindset to continuously update and innovate.

Semester-1

Course Code	Learning Outcomes
CCsL-104 Fundamentals of Computer	**Upon completion of the course, the students will be able to:** • Bridge the fundamental concepts of Computer with the present level of knowledge of students. • Understanding the concept of input and output devices of Computers and how it works and recognize the basic terminology used in computer programming • Familiarize operating systems, programming languages, peripheral devices, networking, multimedia and internet. • Build spreadsheets to perform calculations, display data,

	conduct analysis, and explore what-if scenarios. • Work with basic features of Word
CCsL-105 Programming in "C"	**Upon completion of the course, the students will be able to:** • Write, compile and debug programs in C language and use different data types for writing the programs. • Design programs connecting decision structures, loops and functions. • Explain the difference between call by value and call by address. • Understand the dynamic behavior of memory by the use of pointers • Explain the commands of File Management in "C".
CCsP-109 Computer Lab-1(Based on Fundamentals of Computer & Programming in "C")	**Upon completion of the course, the students will be able to:** • To claim proficiency in word, excel and power point. • Independently create professional-looking documents and presentations. • Demonstrate the use of algorithms and flowcharts to plan the solution of a computing problem. • Explain the use of formatted and unformatted input and output statements in "C" and usage of sequence control statements of "C'. • Enlist the fundamental data types and data structures of "C" And Explain the usage of arrays and pointers in "C". • Differentiate between a structure and a union.

Semester-2

Course code	Learning Outcomes
CCsL-204 (Data structures using 'c')	By the end of the course a student is expected to have the: • Ability to analyze algorithms and algorithm correctness. • Ability to analyze the time and space complexity of algorithms. • Ability to summarize searching and sorting techniques theoretically and practically using '**C'** programming language. • Ability to describe stack, queue and linked list operation and their practical using 'C' language. • Ability to have knowledge of tree and graphs concepts &

	their implementation using C language. • Ability to write program and step by step approach to solve problems with the help of fundamental data structures using C language.
CCsL-205 (Computer Organization)	By the end of the course a student is expected to be able: • To understand the organization of a Computer system. • To solve basic binary math operations using the computer. • To demonstrate programming proficiency using the various addressing modes and data transfer instructions of the target computer. • To apply knowledge of the processor's internal registers. • To apply the knowledge of combinational and sequential logical circuits to design computer architecture. • To understand the input / output and Memory related concepts.
CCsP-209 Computer lab II (Based on data structures using c)	By the end of the course a student is expected to be able: • To write code for a given problem in 'C' language. • To present results in an informative way. • To write efficient, well-documented 'C' code and present numerical results in an informative way.

Semester-3

Course Code	**Learning Outcomes:**
CCsL-304 (Database Management System)	By the end of the course the student will be able to : • Understand storage media and their basic properties. • Understand how data is stored using storage media in a **DBMS**. • Understand how different indexing techniques work. • Understand why and how data needs to be indexed.
CCsL-305 (Operating System)	By the end of the course the student will be able to : • Describe and explain the fundamental components of a computer operating system.

	• Define, restate, discuss, and explain the policies for scheduling, deadlocks, memory management, synchronization, system calls, and file systems. • Design and construct the following OS components: System calls, Schedulers, Memory management systems, Virtual Memory and Paging systems
CCsP-309 (Computer Lab-III(DBMS Lab)	By the end of the course the student will be able to : • Create Database and store information. • Create , update, view and delete table in database, • Learn SQL queries to maintain and access Database.

Semester-4

Course Code	**Learning Outcomes:**
CCsL-404 (Software Engineering)	By the end of the course the student will be able to : • Define various software application domains and remember different process model used in software development. • Describe key activities in software development and the role of modelling • Explain key concepts in software development such as risk and quality • Explain the basics of an object-oriented approach to software development • Describe a simple workflow for interacting with the published literature on software development.
CCsL-405 (Computer Networks)	By the end of the course the student will be able to : • Describe the functions of each layer in OSI and TCP/IP model. • Explain the functions of Application layer and Presentation layer paradigms and Protocols. • Describe the Session layer design issues and Transport layer services. • Classify the routing protocols and analyze how to assign the IP addresses for the given network. • Understand network security and define various protocols such as FTP, HTTP, Telnet, DNS
CCsP-409 (Computer Networks Lab)	By the end of the course the student will be able to : • Identify and use various networking components

	Understand different transmission media and design cables for establishing a network. • Implement any topology using network devices. • Understand the TCP/IP configuration for Windows and Linux. • Implement device sharing on network e) Learn the major software and hardware technologies used on computer networks

Semester-5

Course Code	**Learning Outcomes**
CCsL-503 (Object Oriented Programming using C++)	By the end of the course the student will be able to • Understand the difference between the top-down and bottom-up approach. • Describe the object-oriented programming approach in connection with C++. • Apply the concepts of object-oriented programming • Illustrate the process of data file manipulations using C++ • Apply virtual and pure virtual function & complex programming situations
CCsL-504 (Data Analytics)	By the end of the course the student will be able to • Obtain, clean/process, and transform data • Analyze and interpret data using an ethically responsible approach • Use appropriate models of analysis, assess the quality of input, derive insight from results, and investigate potential issues • Apply computing theory, languages, and algorithms, as well as mathematical and statistical models, and the principles of optimization to appropriately formulate and use data analyses • Formulate and use appropriate models of data analysis to solve hidden solutions to business-related challenges
CCsP-509 (Computer Lab-V(Object Oriented Programming using C++ Lab))	By the end of the course the student will be able to • Creating simple programs using classes and objects in C++. • Implement Object Oriented Programming Concepts in C++. • Develop applications using stream I/O and file I/O. • Implement simple graphical user interfaces.. • Implement Object Oriented Programs using templates

	and exceptional handling concepts.

Semester-6

Course Code	Learning Outcomes
CCsL-603 (Computer Graphics)	By the end of the course the student will be able to : • Explain the core concepts of computer graphics, including viewing, projection, perspective, modeling and transformation in two and three dimensions. • Apply the concepts of color models, lighting and shading models, textures, ray tracing, hidden surface elimination, anti-aliasing, and rendering. • Interpret the mathematical foundation of the concepts of computer graphics. • Describe the fundamentals of animation, parametric curves and surfaces, and spotlighting. • Identify a typical graphics pipeline and apply graphics programming techniques to design and create computer graphics.
CCsL-604 (Python Programming)	By the end of the course the student will be able to : • To understand why Python is a useful scripting language for developers. • To learn how to design and program Python applications. • To learn how to use lists, tuples, and dictionaries in Python programs. • To learn how to identify Python object types.
CCsP-609 (Computer Lab-VI Computer Graphics Lab)	By the end of the course the student will be able to : • Understand the need of developing graphics application. • Learn algorithmic development of graphics primitives like: line, circle, polygon etc. • Learn the representation and transformation of graphical images and pictures.

****

BACHELOR OF COMPUTER APPLICATIONS (BCA)

Three Year Degree Programme

Programme Outcomes, Program Specific Outcomes, Course Outcomes

Course Outcomes: Department of BCA

1. To produce employable IT workforce, that will have sound knowledge of IT and business fundamentals that can be applied to develop and customize solutions for Small and Medium Enterprises (SME)
2.To develop skilled manpower in the various areas of information technology like:
Data base management, Software Development, Computer-Languages, Software engineering, Web based applications etc.

The Program enables the students to:

f) Understand the fundamental concepts of Computers, Business environment and IT Applications in Business
g) Successfully understand & analyze technical data to reach actionable conclusions, including technological solutions to the business.
h) Learn technologies & IT languages, so the business problems could be addressed.
i) Develop competent technical writing skills so as to enable the graduate to communicate business ideas to senior management and general public.
j) To identify and sharpen their IT/ programming skills.

Learning Outcomes

Our graduates will have

f) The necessary technical, scientific as well as basic managerial and financial procedures to analyze and solve real world problems within their work domain
g) Clarity on both conceptual and application oriented skills in commerce, Finance & Accounting and IT Applications in Business context.
h) Improved communication and business management skills, especially in providing tech support.
i) Awareness on ethics, values, sustainability and creativity aspects.
j) The ability and the mindset to continuously update and innovate.

Semenster-1

Course Code	Learning Outcomes
BCA-PC(L)-111 (Environmental Studies)	By the end of the course the student will be able to • Create awareness about environmental problems among people. • Imparting basic knowledge about the environment and its allied problems. • Develop an attitude of concern for the environment. • Motivate public to participate in environment protection and environment improvement. • Create Awareness about environmental social issues like global warming, ozone layer depletion and pollution.
BCA-PC(L)-112 (Mathematical Foundation)	By the end of the course the student will be able to • Dealing with set, relation, permutation and combination • Basic Knowledge about functions and continuity of functions • Do derivative of any function and their higher order derivatives • Get knowledge about differential equations and their solutions. • Get an idea about application of differential equations.
BCA-PC(L)-113 (Computer and Programming Fundamentals)	By the end of the course the student will be able to • Understand computer basics. • Understand programming basics. • Understand binary number system. • Begin using the Java programming language. • Display output on the console. • Explain the differences between syntax errors, runtime errors, and logic errors.
BCA-PC(L)-114 (PC Software)	By the end of the course the student will be able to • Demonstrated a basic understanding of computer hardware and software. • Demonstrate basic level of competency in programming and logic skills. • Utilize web technologies. • Present conclusions effectively, orally and in writing. • Use productivity software effectively (spreadsheets, database software, and project management software). • Identify an area of interest through the selection of

	elective courses. • Apply the skills that are the focus of this program to business scenarios.
BCA-PC(L)-115 (Problem Solving Through C)	By the end of the course the student will be able to • Write efficient algorithms to solve various problems • Understand and use various constructs of the programming language such as conditionals, iteration, and recursion • Use data structures like arrays, linked lists, and stacks to solve various problems • Understand and use file handling in the C
BCA-PC(L)-116 (Problem Solving Through C Lab)	By the end of the course the student will be able to • Implement your algorithms to build programs in the C programming language • Use data structures like arrays, linked lists, and stacks to solve various problems • Understand and use file handling in the C • Learn Programming skills and can implement in IT sectors. • Understand and use various constructs of the programming language such as conditionals, iteration, and recursion

Semester-2

Course code	**Learning outcome**
BCA-PC(L)-121 Communication Skills and Personality Development	• Students will be able to understand and apply knowledge of human communication and language processes as they occur across various contexts, e.g., interpersonal, intrapersonal, small group, organizational, media, gender, family, intercultural communication, technologically mediated communication, etc. from multiple perspectives. • Effective communication skills strengthen the bond among individuals. It is also said to improve the interpersonal relationships with other people. • Careful selection of words is essential for effective communication skills. You really need to know what you are speaking. You never know what might hurt the other person. Never even think of being rude to anyone.

BCA-PC(L)-122 Computer Oriented Numerical Methods	• Students will effectively communicate topics in the mathematical sciences. • Students will be able to formulate, analyze, and solve a wide variety of problems in this. • Students will engage in a lifelong learning process via ability to self-educate. • Students will demonstrate proficiency with the topical content and techniques included in the courses in this.
BCA-PC(L)-123 Data Structures	• Students who have successfully completed this course will be able to: Demonstrate strong problem solving skills in constructing complete High Level language programs to tackle exercises inspired by real-world problems. Analyze the performance of algorithms and data structures. • Students will understand the concept of :- a) Dynamic memory management, data types, algorithms, Big O notation. b) Understand basic data structures such as arrays, linked lists, stacks and queues. c) Describe the hash function and concepts of collision and its resolution methods
BCA-PC(L)-124 Operating System	• Students have the logical, algorithmic, and mathematical capability to model and analyze real-world problems in different application domains, to devise the problem-solving schemes accordingly, and to validate the correctness and effectiveness of the schemes. • Describe what operating systems are, including what they do, how they do it, and how their performance can be evaluated List and describe core items of operating systems including memory management, networks, processor management, system security, device management, systems management, and file management
BCA-PC(L)-125 Management Information System	• Understand the leadership role of MIS in achieving business competitive advantage through informed decision making. • Analyze and synthesize business information and systems to facilitate evaluation of strategic alternatives. • Effectively communicate strategic alternatives to facilitate decision making.

BCA-PC(P)-126 Data Structure Lab	• Student will be able to explain implementation and operations of basic data structures: Linked list, Stack, Queue, Tree and Graph. • They will be able to apply programming techniques using Pointer, Dynamic Memory allocation and structures to implement data structures as mentioned above. • Able to design and implement new abstract data using Data Structures with the help of programming implementations. • Able to apply the knowledge of data structure in problem solving.
BCA-PC(P)-127 Operating System Lab	Upon the completion of Operating Systems practical course, the student will be able to: • Understand and implement basic services and functionalities of the operating system using system calls. • Use modern operating system calls and synchronization libraries in software/ hardware interfaces.

Semester-3

Course Code	Learning Outcomes
BCA-PC(L)-231 Object oriented programming using c++	By the end of the course the student will be able to • Codes basic programs in Java programming language. • Prints to the screen in Java language. • Makes relational operations in Java. • Constructs loops in Java. • Defines arrays in Java and uses them. • Uses objects and **classes**. • Declares objects and **classes**. • Distinguishes **classes** and objects

BCA-PC(L)-232 Web Designing	By the end of the course the student will be able to • Develop skills in analyzing the usability of a web site. • Understand how to plan and conduct user research related to web usability. • Learn the language of the web: HTML and CSS. • Learn CSS grid layout and flex box. • Learn techniques of responsive web design, including media queries. • Develop skills in digital imaging (Adobe Photoshop.)
BCA-PC(L)-233 Digital Electronics	By the end of the course the student will be able to • Understand the current voltage characteristics of semiconductor devices • Analyze dc circuits and relate ac models of semiconductor devices with their physical Operation • Design and analyze of electronic circuits
BCA-PC(L)-234 Introduction to Database System	By the end of the course the student will be able to • Describe the fundamental elements of relational database management systems • Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL. • Design ER-models to represent simple database application scenarios • Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data. • Improve the database design by normalization
BCA-PC(L)-235 Advanced Data Structures	By the end of the course the student will be able to • Ability to analyze algorithms and algorithm correctness. • Ability to summarize searching and sorting techniques • Ability to describe stack queue and linked list operation. • Ability to have knowledge of tree and graphs concepts.

BCA-PC(L)-236 Object oriented programming using c++ Lab	By the end of the course the student will be able to • Choose appropriate data structures to represent data items in real world problems. • Analyze the time and space complexities of algorithms • Design programs using a variety of data structures such as stacks, queues, hash tables, binary trees, search trees, heaps, graphs, and B-trees. • Analyze and implement various kinds of searching and sorting techniques.
BCA-PC(L)-237 Web Designing Lab	By the end of the course the student will be able to • Analyze a **web** page and identify its elements and attributes. • Create **web** pages using XHTML and Cascading Style Sheets. • Build dynamic **web** pages using JavaScript (Client side programming). Create XML documents and Schemas.

Semester-4

Course Code	Learning Outcomes
BCA-PC(L)-241 Java Programming	By the end of the course the student will be able: • To learn why Java is useful for the design of desktop and web applications. • To learn how to implement object-oriented designs with Java. • To identify Java language components and how they work together in applications.
BCA-PC(L)-242 RDBMS	By the end of the course the student will be able to understand: • What is a DBMS and what it provides • The difference between different types of query languages • Functional dependencies and their relationship to keys • BCNF and 3NF • How queries are processed, optimized and evaluated in a DBMS
BCA-PC(L)-243 Computer Architecture	By the end of the course the student will be able: • To identify the elements of modern instructions sets

	and their impact on processor design. • To explain the function of each element of a memory hierarchy. • To identify and compare different methods for computer I/O. • To state and understand memory hierarchy design, memory access time formula and performance improvement techniques. • To state and compare properties of shared memory and distributed multiprocessor systems and cache coherency protocols.
BCA-PC(L) -244 Computer Networks	By the end of the course the student will be able to: • Describe the general principles of data communication. • Describe how computer networks are organized with the concept of layered approach. • Implement a simple LAN with hubs, bridges and switches. • Describe how routing protocols work.
BCA-PC(P)246 Java Programming Lab	By the end of the course the student will be able: ▪ To design and program stand-alone Java applications. ▪ To learn how to implement object-oriented designs with Java. ▪ To learn how to extend Java classes with inheritance and dynamic binding.
BCA-PC(P)- 247 RDBMS	By the end of the course the student will be able to: ▪ Populate and query a database using SQL DML/DDL commands. ▪ Declare and enforce integrity constraints on a database using a state-of-the-art RDBMS ▪ Program PL/SQL including stored procedures, stored functions, cursors, packages.
Elective -1	
BCA-PE(L)-241 Advanced Web Designing	By the end of the course: • Students will be able to write a well formed valid XML document • Students will be able to write a server side java application called JSP to catch form data sent from client and store it on database.

	• Students will be able to write PHP programs.
BCA-PE(L)-242 Mobile Application Development	By the end of the course the student will be able to: • Recognizes the concept of application development for mobile devices. • Recognizes mobile computing platforms and mobile computing • Explains the basic concepts of Android phone features and capabilities. • Explains the relationship between XML and Java for the Android platform. • Recognizes and uses Android Environment Emulator and Application life cycle
BCA-PE(L)-243 System Administration & Maintenance	By the end of the course the student will be able to: • Create an installation document and implementation timeline. • Install network cabling and terminating each connection in conjunction with cabling standards. • Implement security policy for computers, users, groups, and authentication

Semester-5

Course Code	Learning Outcomes
BCA-PC(L)-351 Programming Using Python	By the end of the course the student will be able: • To understand how to write functions and pass arguments in Python. • To understand how to build and package Python modules for reusability. • To understand how to read and write files in Python. • To understand how to design object-oriented programs with Python classes. • To understand how to use class inheritance in Python for reusability
BCA-PC(L)-352 Artificial Intelligence	By the end of the course the student will be able to: • Compare AI with human intelligence and traditional information processing and discuss its strengths and limitations • Apply the basic principles, models, and algorithms of AI to recognize, model, and solve problems in the analysis and design of information systems.

	• Discuss the core concepts and algorithms of advanced AI, including informed searching, CSP, logic, uncertain knowledge and reasoning
BCA-PC(L)-353 Software Engineering	By the end of the course the student will be able to: • Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. • Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives. • Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions. • Acquire and apply new knowledge as needed, using appropriate learning strategies.
BCA-PC(L)-354 Data Warehousing And Data Mining	By the end of the course the student will be able to: • Understand Data Warehouse fundamentals, Data mining principles. • Design data warehouse with dimensional modelling and apply OLAP operations. • Identify appropriate data mining algorithms to solve real world problems • Compare and evaluate different data mining techniques like classification, prediction, clustering and association rule mining. • Describe complex data types with respect to spatial and web mining.
BCA-PC(P)-356 Python Programming Lab	By the end of the course the student will be able: • To learn how to design and program Python applications. • To learn how to use lists, tuples, and dictionaries in Python programs. • To understand why Python is a useful scripting language for developers.
BCA-PC(P)-357 Artificial Intelligence Programming Lab	By the end of the course the student will be able to: • Compare AI with human intelligence and traditional information processing and discuss its strengths and limitations as well as its application to complex and human-centered problems.

	• Apply the basic principles, models, and algorithms of AI to recognize, model, and solve problems in the analysis and design of information systems. • Analyze the structures and algorithms of a selection of techniques related to searching, reasoning, machine learning, and language processing
Elective-2	
BCA-PE(L)-351 Data Analytics	By the end of the course the student will be able to: • Understand the key issues in big data management and its associated applications in intelligent business and scientific computing. • Interpret business models and scientific computing paradigms, and apply software tools for data analytics.
BCA-PE(L)-352 Computer Graphics	By the end of the course the student will be able to: • Explain the core concepts of computer graphics, including viewing, projection, perspective, modelling and transformation in two and three dimensions. • Interpret the mathematical foundation of the concepts of computer graphics. • Identify a typical graphics pipeline and apply graphics programming techniques to design and create computer graphics.
BCA-PE(L)-353 Cloud Computing	By the end of the course the student will be able to: • Identify the architecture and infrastructure of cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc. • Identify problems, and explain, analyze, and evaluate various cloud computing solutions. • Provide the appropriate cloud computing solutions and recommendations according to the applications used.

Semester-6

BCA-PC(L)-361 Internet Technology	By the end of the course the student will be able : • To determine internet resources accessibility pattern among undergraduate students. • To demonstrate the students perceived benefits from the use of internet resources for academic research and

	learning. • To understand the search engines frequently used by the students for educational inquiry. • To realize the challenges confronting the students regarding the use of the internet for educational research and learning.
BCA-PC(L)-362 E - Commerce	By the end of the course the student will be able to: • Define and differentiate various types of Ecommerce. • Describe Hardware and Software Technologies for Ecommerce. • Explain payment systems for E - commerce. • Describe the process of Selling and Marketing on web. • Define and Describe E-business and its Models. • Discuss various E-Business Strategies
BCA-PC(L)-363 Multimedia Technology	By the end of the course the student will be able to: • Learn how learning theories influence the development of multimedia product • Develop competencies in designing and creating interactive multimedia applications by explaining how elements of these applications reflect a theory of how learning will occur; • Work with all aspects of text, audio, images and video; • Be able to use various multimedia authoring tools • Be able to design and create interactive multimedia products • Apply contemporary theories of multimedia learning to the development of multimedia products. • Evaluate existing multimedia products that can be used to design instructional and informational material. • Analyze instructional and informational media (print materials, audio/visual materials and/or web-based materials, games/simulations, etc.) • Describe the types of media and define multimedia system. • Describe the process of digitizing (quantization) of different analog signals (text, graphics, sound and video). • Use and apply tools for image processing, video, sound and animation. • Apply methodology to develop a multimedia system. • Apply acquired knowledge in the field of multimedia in practice and independently continue to expand

	knowledge in this field.
BCA-PC(L)-364 Information and Cyber Security	By the end of the course the student will be able to: • Design, develop, test and evaluate secure software. • Develop policies and procedures to manage enterprise security risks. • Evaluate and communicate the human role in security systems with an emphasis on ethics, social engineering vulnerabilities and training. • Interpret and forensically investigate security incidents.
BCA-PC(L)-366 Project Work	By the end of the course the student will be able to: • Demonstrate a sound technical knowledge of their selected project topic. • Discover potential research areas in the field of IT • Conduct a survey of several available literature in the preferred field of study • Compare and contrast the several existing solutions for research challenge • Demonstrate an ability to work in teams and manage the conduct of the Communicate with engineers and the community at large in written an oral forms. • Demonstrate the knowledge, skills and attitudes of a professional engineer
Elective-3	
BCA-PE(L)-361 Open Source Software	By the end of the course the student will be able to: • Explore the mechanisms by which open-source software development projects operate, from inception through maintenance. • Explore the group dynamics, motivations for participation, software development methodologies, and activities typically inherent in an Open-Source project. •
BCA-PE(L)-362 Data Visualization Using R	By the end of the course the student will be able to: • Install and use R for simple programming tasks. • Extend the functionality of R by using add-on packages • Extract data from files and other sources and perform various data manipulation tasks on them. • Code statistical functions in R. • Use R Graphics and Tables to visualize results of various

	statistical operations on data . • Apply the knowledge of R gained to data Analytics for real life applications.
BCA-PE(L)-363 Software Testing	By the end of the course the student will be able to: • Investigate the reason for bugs and analyze the principles in software testing to prevent and remove bugs. • Implement various test processes for quality improvement • Design test planning. • Manage the test process • Apply the software testing techniques in commercial environment • Use practical knowledge of a variety of ways to test software and an understanding of some of the tradeoffs between testing techniques.

****

DEPARTMENTS OF MATHEMATICS

COURSE OUTCOMES

Mathematics is usually described as the abstract science of numbers, quantity and space along with their operations. The scope of Mathematics is very broad and it has wide range of applications in naturals sciences and engineering , economic and social sciences.

B.Sc. course aims to develop the ability to think critically, logically and analytically and hence to use Mathematics in everyday life.

We can appreciate the usefulness , power and beauty of mathematics. During B. Sc. course in Mathematics we came across algebra, calculus, vector calculus , ordinary differential equation and Laplace transforms, advanced calculus, partial differential equation and special functions, mechanics, groups and rings, sequence and series.

Semesters	Course	Code	Course Objective	Course Outcomes
1st	Algebra	CML 106	The course on algebra deals with advance topics on matrices viz. rank , eigen values, homogeneous and non homogeneous systems, solution of cubic and bi – quadratic equations and de Moivre's theorem.	The student will be able to find the rank, eigen values of matrices and solve the homogeneous and non homogeneous systems, solution of cubic and bi – quadratic equations.
	Calculus	CML 107	The course on differential Calculus deals with some important concepts of limit, continuity, differentiability	The student will be able to understand basic properties ofLimit, continuity and derivability of functions, series expansion Indeterminate forms,

			of functions and tracing of curves.	tracing of curves with the help of asymptotes and singular points.
2nd	VECTOR CALCULUS AND GEOMETRY	CML 206	The course on Vector Calculus and Geometry deals with topics on vectors and geometry viz. directional derivatives, gradient, curl, two and three dimensional geometry.	The student will be able to find directional derivatives, gradient, curl. Laplacian operator, two and three dimensional geometry.
	ORDINARY DIFFERENTIAL EQUATIONS AND LAPLACE TRANSFORMS	CML 207	The course on ordinary differential equations and Laplace Transforms deals with some important concepts: Exact differential equations, Orthogonal trajectories, Linear differential equations with variable & constant coefficients and solution of ordinary differential equations using Laplace Transforms.	The student will be able to understand basic properties ofdifferential equations, Orthogonal trajectories, Linear differential equations. Apart from this the students will be able to solve ODE by Transformation of the equation by changing the dependent variable and the independent variable. Reduction of order of a differential equation. Method of variations of parameters. Solution of Simultaneous DifferentialEquations and Total Differential

				Equations. Student will also be able to understand basic properties of Laplace and Inverse Laplace Transforms and solution of ordinary differential equations using Laplace Transform
3rd	Advanced Calculus	CML 306	This course aims to introduce the notion of differentiation and integration in general, and sets, functions (and their graphs), limits and continuity of functions in particular. Techniques of derivatives and integration and solving various examples to grasp the idea of each technique are the main objective this course aims to deliver.	After completing this course students will able to differentiate and integration in general. They are also able to find limit and continuity of functions of more than one variable.
	Numerical Analysis	CML 307	To process the numerical methods of solving the non – linear equations, interpolation, differentiation, and integration to improv the student skills in the in Numerical methods by	They can understand the theoretical & practical aspects of use of numerical analysis.

			using the numerical analysis software and computer facilities.	
4th	Partial differential Equation & special function	CML 406	The objective is to deal some concepts of PDE, methods to solve linear and non linear equations and classifications of PDE, to know some special functions such as Legendre function Rodrigues formula.	After completing this they will able to deal with concept of PDE. They will be able to do classification of PDE and also know about the special functions.
	Mechanics – 1	CML 407	To enable the students to understand the basic concept of mechanics. To understand the concept of forces, wrenches, velocity and Newton's law of motions, Kepler's law of planetary motions.	This course enables students to know about the general concepts of Mechanics such as forces, Newton's law , Kepler's law.
5th	Groups and Rings	CML 506	The course aims to provide an introduction to some of the most fundamental algebraic structures encountered in algebra and	After studying this course students will be able to relate group theory with real life using symmetric group and to solve basic problems related to groups , Rings and Fields.

			geometry groups and rings, subgroups, fields and some results related to it.	
	Sequence and Series	CML 507	To develop in the students, the Mathematical Analysis to understand sequence and series. To understand the topology of real line, sequence, series and the fundamental theorem of calculus.	After completion of this course student will able to know basics of sequence and series which are important in higher studies and to determine the nature of series such as bounded or unbounded or convergent , divergent.
	Number Theory & Trigonometry	CML 508	Number theory is branch of pure mathematics devoted primarily to study of integer and integer valued functions such as Euler function. In trigonometry we came across exponential, logarithmicand circular functions.	The number theory will discover interesting relationship between different sorts of numbers and to prove that these are true.
6^{th}	Linear Algebra	CML 605	The objective is to know about vector spaces, sub spaces, homomorphism and isomorphism also linear transformation , Eigen values	Students will know about vector spaces, Subspaces, and solve linear system and characterize the set of vector.

			and Eigen vectors, inner product space.	
	Mechanics – 2	CML 606	Objective is to know about basic concepts and definitions of center of gravity friction, Hooks law, motion of particle on smooth curve, projectile motion of a particle.	Students will get knowledge about center of gravity friction, Hooks law, motion of particle on smooth curve, projectile motion of a particle.
	Real and Complex Analysis	CML 607	The course on real and complex analysis deals with topics on metric space, Baire's theorem, Abel's and Dirichlet's tests , improper integral and topology of complex numbers, continuity and analyticity of functions.	Students will be able to understand the concept of metric space, Baire's theorem, Abel's and Dirichlet's tests , improper integral and topology of complex numbers, continuity and analyticity of functions.
	Solid Geometry	CMS 608	The objective is to deal with central conicoids, paraboloids, confocal conicoid and enveloping cone of conicoid.	The students will be able to learn about central conicoids, paraboloids, confocal conicoid and enveloping cone of conicoid.

M.Sc. Mathematics

1st SEMESTER

ALGEBRA(MAL 511)

Objective: To familiarize students with some properties of groups and fields which have many applications in coding theory.

REAL ANALYSIS(MAL 512)

Objective: To acquaint the students with the topics of Reimann-Stieltjes integral,sequence and series of functions, power series, function of several variables and with the basic concepts of measurability of sets

MECHANICS(MAL513)

Objective: To familiarize students with basic concepts of moment of inertia;representation of the equations of motion for mechanical system using the Lagrangian and Hamiltonian formulation of classical mechanics.

ORDINARY DIFFERENTIAL EQUATIONS-I(MAL 514)

Objective: To acquaint the students with existence and uniqueness of solutions of IVP, continuation of solutions, differential inequalities and with Sturm-Liouville boundary value problems.

COMPLEX ANALYSIS-I (MAL515)

Objectives: To familiarize with the analytic and meromorphic functions and their applications.

PROGRAMMING WITH FORTRAN (THEORY) (MAL516)

Objectives: To familiarize the students with the basics of computer and programming concepts of scientific language Fortran 90/95.

2nd Semester

ABSTRACT ALGEBRA (MAL521)

Objectives: To familiarize students with some properties of rings and modules.

MEASURE AND INTEGRATION THEORY (MAL522)

Objectives: To acquaint the students with the topics of measurable functions, Lebesgue integral, Differentiation of monotonic functions and L^p spaces.

METHODS OF APPLIED MATHEMATICS (MAL523)

Objectives: To familiarize the students with basics of Fourier Transforms and its applications, Curvilinear Co-ordinates, probability distributions, multiple correlation and sampling distributions.

ORDINARY DIFFERENTIAL EQUATIONS-II (MAL524)

Objectives: To familiarize the students with linear systems, adjoint systems, non-linear systems and with some motivating problems of calculus of variation.

COMPLEX ANALYSIS-II (MAL525)

Objectives: To familiarize the concepts of analytic continuation, properties of entire functions and conformal mapping.

Objectives: To familiarize the concepts of analytic continuation, properties of entire functions and conformal mapping.

PROGRAMMING IN C (Theory) (MAL 526)

Objectives: To familiarize the students with the programming concepts of most popular language C& C++.

3rd Semester

TOPOLOGY (MAL631)

Objectives: To familiarize the students with basics of a topological space, compactness, connectedness, separation axioms and product spaces..

PARTIAL DIFFERENTIAL EQUATIONS (MAL 632)

Objectives: To familiarize the students with linear and non-linear partial differential equations in Rn and various methods to obtain the solution of partial differential equations.

MECHANICS OF SOLIDS-I (MAL633)

Objectives: To familiarize students with basics of Cartesian Tensor, theory of elasticity including strain/displacement relations, equilibrium and constitutive equations, Hooke's law to develop stress-strain relationships for different types of materials, basic properties of materials to solve problems related to isotropic elasticity.

COMPUTING LAB-2 (MAP634)

Objectives: The objective of the course is to familiarize the students with the working of the MATLAB softwares:

ANALYTIC NUMBER THEORY (MAL635)

Objectives: To study some important results of number theory.

FLUID MECHANICS (MAL636)

Objectives: The objective of this paper is to make the students familiar with the flow properties of ideal fluid.

ADVANCED DISCRETE MATHEMATICS (MAL637)

Objectives: To study some important results of discrete mathematics with their applications.

DIFFERENCE EQUATIONS (MAL638)

Objectives: To familiarize the students with difference equations, stability theory and asymptotic methods.

4th Semester

FUNCTIONAL ANALYSIS (MAL641)

Objective: To familiarize the students with the topics of Normed linear spaces, Conjugate spaces, Equivalent norms and Inner product spaces.

DIFFERENTIAL GEOMETRY (MAL 642)

Objectives: To apply the concepts and techniques of differential geometry of curves and surfaces; understand the curvature and torsion of a space curve and how to analyze and solve problems, First and Second fundamental forms of a surface; compute the mean and Gauss curvature of a surface; find geodesics on a given surface and its torsion.

MECHANICS OF SOLIDS-II (MAL643)

Objectives: To familiarize the students with Two-dimensional elastostistic, problems, fundamentals of Viscoelasticity, Torsion of cylindrical bars, propagation of waves in an elastic solids and variational methods used in deformation of elastic materials.

INTEGRAL EQUATIONS (MAL644)

Objectives: To familiarize the students with the concepts of integral equations and various methods for the solutions of different type of integral equations.

ADVANCED FLUID MECHANICS (MAL645)

Objectives: The objectives of this paper is to make familiar with the flow properties of real fluids and their applications in science and technology.

COMPUTING LAB-3 (MAL648)

Objectives: The objective of the course is to familiarize the students with the working of the LATEX software:

****

DEPARTMENT OF PHYSICS

Program specific outcome:

Bachelor of Science with Physics as one of the subjects is an undergraduate course. This course curriculum includes the main areas of Physics viz. Classical mechanics, Electronics, Electromagnetic theory, Spectroscopy, Quantum mechanics and Solid State Physics. The purpose of this course is

- To provide the comprehensive knowledge of the theoretical concepts of Physics as well as to make them experience these concepts through laboratory resources such that the students may compete as professionals in the field of Physics.
- To promote technology by developing resources to meet the growing demand of physicist in various fields. Physics being a multidisciplinary field is in great demand because of its various applications in the field of research and development.
- Physics being the heart of all engineering branches, is having a huge scope in Electrical, Electronic, Computer, mechanical, civil as well as in other fields of research and engineering.
- A graduate in Physics can determine the appropriate level of technology in various ways: a) experimental data analysis, b) numerical and computational methods in problem solutions, c) experimental design and implementation.
- The practical knowledge of the subject gives lots of opportunities to students in the field of Engineering and designing various models of Physics so that they may contribute their maximum in the nation building through their scientific, logical and rational knowledge of the subject.

Semester wise course objectives and course outcomes have been described in the following table.

Semester I	**Course Name: MECHANICS-I; Course Code -CPL-102.** **ELECTRICITY AND MAGNETISM-I; Course Code -CPL-103.**
	Course objective: The course on mechanics deals with some important mathematical Physics concepts, Laws of Motion, Rotational motion, Gravitation and Elasticity. The course on Electricity and Magnetism deals with Coulomb's law, Electric field, Electric flux, Capacitors, Magnetism and magnetic materials along with the applications of these concepts. **Course outcomes:** The students on successful completion will be able to • Understand basic Mathematical Physics equations, motion of different objects, global positioning system, planetary motion etc. • Know the principle behind the aerodynamics of airplane flight. • Understand Gauss-divergence theorem, Stokes theorem, Electrical and Magnetic properties of materials. • Understand about various applications of magnetic materials in transformer and permanent magnets. • Know how charged particles are accelerated in presence of Electric and Magnetic field as in television and such other devices
Semester II	**Course Name: MECHANICS-II & ELECTRICITY; Course Code CPL-202 .** **MAGNETISM & ELECTROMAGNETIC THEORY-II; Course Code CPL-203.**
	Course objective: The course on mechanics deals with Lagrangian formulation of mechanics, Oscillatory motion and damping and special theory of relativity. The course on Electricity and Magnetism deals with the Electromagnetic induction, Maxwell's Equations, Electromagnetic wave propagation, Poynting Vector and electromagnetic field transformation. **Course outcomes:** • The student will be able to understand some advanced notion of mechanics, SHM and relativistic addition of velocities. • The student will be able to understand electromagnetic induction and it's applications, generation of electromagnetic fields, wave propagation, propagation through vacuum and isotropic dielectric medium. • They can understand the transformation of mass into energy and vice-versa. • Students will acquire a good knowledge of wave propagation in vacuum and

	medium.
Semester III	**Course Name**: **Heat and Thermodynamics; Course Code CPL-302.** **Semiconductor Devices; Course Code CPL-303.**
	Course objective: The course on Thermal Physics deals with some important laws of thermodynamics, concepts of heat, work, temperature and entropy. Behavior of real gases as thermo dynamical systems will be of great interest. The course on Semiconductor Devices deals with basic semiconductor properties, band formation, intrinsic and extrinsic semiconductors and formation of junction. After discussing the transistor Physics, applications of diodes and transistors in various devices are given. **Course outcomes:** • The student will be able to understand basic concepts of thermodynamical systems. Student will have practical knowledge about the working of heat engine and refrigerator. Also, they will have idea about various thermodynamical processes in various physical systems. • The student will be able to understand the semiconductor junctions, transistors and various devices based on these basic semiconductor elements. • The student will have a practical knowledge of diode and transistors and their use in making the most useful latest devices such as solar cells, zener diodes, LEDs, amplifiers, and oscillators.
Semester IV	**Course Name: Statistical Mechanics; Course Code CPL-402.** **Waves and Optics; Course Code CPL-403.** **Skill Enhancement Course- Electrical Circuits and Network Skills; Course Code CPL-409**
	Course objective: The course on statistical mechanics deals with statistical description of macro system, density of states, concept of ensemble, partition function and kinetic theory of gases. The Maxwell-Boltzmann Distributions, Fermi-Dirac Distribution and Bose-Einstein distributions and their applications. The course on Waves and Optics deals with the wave equations, Interference, diffraction and polarization. The aim of Skill Enhancement Course is to enable the students to design and trouble shoots the electrical circuits, networks and applications through hands-on mode.

	Course outcomes: • The student will be able to understand concepts of transverse and longitudinal waves, Young's double slit experiment. Concept of refractive index, Zone plate, various types of diffraction. Basic idea of the light propagation through optical fibers. • They will understand Physics behind the various phenomenon such as blue color of sky, polarization of light, interference and diffraction of light. • The student will be able to understand some basic notion of statistical mechanics including interpretation of second law of thermodynamics. Concept of negative temperature, Gibbs paradox. • Student will have knowledge of different behavior of the gases such as Fermionic and Bosonic gas. • Through skill enhancement course the students will be able to design the electrical and electronic circuits. This will enable the students to evolve small projects.
Semester V	**Course Name : Elements of Modern Physics; Course Code CPL-501.** **Nuclear Physics; Course Code CPL-502.**
	Course objective: The course on Nuclear Physics deals with Basic Properties of Nuclei, Radioactivity, Nuclear Models and nuclear forces, Radiation Interactions, Nuclear Reactions, Nuclear Radiation Detectors and Nuclear Reactors. The course on Elements of Modern Physics deals with Bohr Model, Fundamentals of Wave Mechanics, Heisenberg uncertainty principle, Schrodinger Equation and LASER. **Course outcomes:** • The student will be able to understand nuclear composition and nuclear properties, nuclear models, Nuclear detectors and reactors. • Also they will have a practical knowledge of how energy is being generated by the nuclear reactors. • The student will be able to understand Photo-electric effect and Compton scattering, calculation of energy levels for Hydrogen like atoms, Principle and working of LASER systems.

	• Also the students will be having a practical knowledge of Uses of LASERs.
Semester VI	**Course Name: Solid State Physics; Course Code CPL-601.** **Quantum Mechanics; Course Code CPL-602.**
	Course objective: The course on Solid State Physics deals with some important concepts of crystal structure, lattice vibrations, band theory, magnetic properties of matter and superconductivity. The course on Quantum Mechanics deals with applications of Schrodinger equation, spectroscopic terms and Rotational and vibrational spectra of diatomic molecules. **Course outcomes**: • The student will be able to understand the concept of crystal planes and Miller indices, Phonon, Curie law, Applications of Superconductivity. • They will have knowledge of the structure of NaCl and various important materials such as diamond and graphite. • The students will very well understand that how the XRD is helpful in determining the various lattice parameters while studying experimental techniques. • The student will be able to understand basic concepts of Quantum Mechanics, one dimensional Harmonic Oscillator problem, Coupling Schemes, Rotational and vibrational spectra of diatomic molecules. • They will able to know why Sodium light contains two wavelengths and why different elements emit lights of different colors on excitation. • Also have a good knowledge of various spectroscopic techniques which helps to determine the various properties of atoms and molecules.

****

DEAPERMENT OF ELECTRONICS

AIMS OF BACHELORS DEGREE PROGRAMME IN B.Sc. PHYSICAL SCIENCES WITH ELECTRONICS DISCIPLINE

The LOCF based UG educational program in B.Sc. Physical Science with Electronics aim to motivate students to develop a deep interest in Electronics, and to gain a broad and balanced knowledge and understanding of physical concepts, principles and theories of Electronics.

The course provide opportunities to students to learn, design and perform experiments in lab, gain an understanding of laboratory methods, design and analysis of electronic circuits and report writing, and acquire a deeper understanding of concepts, principles and theories learned in the classroom through laboratory demonstration.

The course prepare students for pursuing the interdisciplinary and multidisciplinary higher Education and/or research in interdisciplinary and multidisciplinary areas, as Electronics is among the most important branches of applied science necessary for interdisciplinary and multidisciplinary research.

PROGRAM LEARNING OUTCOMES IN B.Sc. PHYSICAL SCIENCES with Electronics discipline

The student graduating with the Degree B.Sc. Physical sciences with Electronics discipline, B.Sc. (PEM) should be able to

● Acquire

(i) A systematic and coherent understanding of basic Electronics including the concepts, theories and relevant experimental techniques in the domains of Network Analysis, Analog Electronics, Digital Electronics, Integrated Circuits, Communication Electronics, Microprocessor, Microcontroller and of the specialized field like Semiconductor Devices, Electronic Instrumentation, Digital Signal Processing, Photonic Devices, Power Electronics, Antenna Theory, wireless Network, etc. in their choice of Discipline Specific Elective course.

(ii) A wide ranging and comprehensive experience in Electronics laboratory methods in experiments related to Network Analysis, Analog Electronics, Digital electronics, Communication, Microcontroller, Semiconductor Devices, Instrumentation, Digital Signal Processing, Antenna's, etc. Students acquire the ability for systematic designing and analysis of circuits, recording of proper observations, use of scientific research instruments, analysis of observational data, making suitable error estimates and scientific report writing.

(iii) Procedural knowledge that creates different types of professionals related to the subject area of Electronics and multi/interdisciplinary domains, including professionals engaged in research and development, teaching, technology professions and government/public service

● Demonstrate relevant generic skills such as
(i) Problem-solving skills that are required to solve different types of Electronics-related problems with well-defined solutions, and tackle open-ended problems that belong to the disciplinary area boundaries.
(ii) Investigative skills, including skills of independent investigation of problems.
(iii) Analytical skills involving paying attention to details and ability to construct logical arguments, using correct technical language and ability to translate them with popular language when needed.
(iv) Personal skills such as the ability to work both independently and in a group.

● Demonstrate professional behavior such as
(i) Being objective, unbiased and truthful in all aspects of work and avoiding unethical, irrational behavior such as fabricating, falsifying or misrepresenting data.
(ii) The ability to identify the potential ethical issues in work-related situations.

Electronic as a subject in B.Sc prepares the students to the current needs of the industry and equip them with skills relevant for national and global standards. Electronic syllabus is designed on the contours and curricular structure of CBCS provided by the UGC, and may be modified without sacrificing the spirit of CBCS

Electronics course structure

The programme includes Core Courses (CC) , discipline specific courses and a skill enhancement course.

Core courses should compulsorily be studied by all students

Discipline Specific Course can be chosen from a pool of courses which are very specific, specialized, advanced and are supportive to the electronics discipline and provides an extended scope in electronics subject.

Skill enhancement course helps the student to acquire knowledge in a specific branch of electronics

Detailed Courses for Programme in B.Sc. Physical Sciences, (Electronics)including Course Objectives, Learning Outcomes

B.Sc 1st year: Core courses

Semester 1: Network Analysis and Electronic Devices (Paper code CEL-104)

and Analog Electronics (Paper code CEL-105) Practical 1-Network and Analog

Practical -I (Paper Code 109)

Course Objective

• This course offers the basic knowledge to students to design and analyze the network circuit analysis and analog electronics.
• It gives the concept of voltage, current sources and various electrical network theorems. Physics of Semiconductor devices including Junction diode, Bipolar junction Transistors, Unipolar devices and their applications are discussed in detail.
• This also develops the understanding of amplifier and its applications.

Course Learning Outcomes

At the end of this course, students will be able to achieve the following learning outcomes:
• To understand the concept of voltage and current sources, Kirchhoff's current and voltage laws, Mesh and Node Analysis.
• To understand the concept of Network theorems.
• To be able to determine h, y and z parameters.
• To understand the formation of Depletion layer in P N Junction diode.
• To develop an understanding of the basic operation and characteristics of a diode, dc load line Q point.
• Become familiar with working and applications of ZENER DIODE.
• Become familiar with Half-wave, Full-wave center tapped and bridge rectifiers. To be able to calculate ripple factor and efficiency.
• To understand the working of filters in power supply, working of Zener diode as voltage regulator.
• Be able to understand line and load regulation.
• To be able to recognize and explain the characteristics of a PNP or NPN transistor.
• To be able to define the active, cutoff and saturation regions.
• Be able to apply the proper biasing to insure operation in active region.
• Become familiar with the load-line analysis of the BJT configurations.
• To understand the hybrid model (h- parameters) of the BJT transistors.
• To be able to perform small signal analysis of CE Amplifier. To be able to classify class A, B and C amplifiers.
• To be able to perform analysis of two stage R-C coupled Amplifier.
• To understand the concept of positive and negative feedback along with applications of each type of feedback.
!23
• To understand the working of Oscillators.
• To become familiar with construction, working and characteristics of JFET and UJT.

B.Sc 1st year:Core courses

Second Semester: Linear And Digital Integrated Circuits (Paper code CEL-204)

Digital Electronics (Paper Code CEL-205)

Practical-II (Paper Code CEL-209)

Course Objective

• This paper aims to provide the basic knowledge of linear and digital electronics.
• It discusses about the operational amplifier and its applications. It introduces the number systems such as Decimal, Binary, Octal and Hexadecimal number systems along with their applications in arithmetic circuits.
• Boolean algebra and combinational logic circuits are also discussed.

Course Learning Outcomes

At the end of this course, students will be able to achieve the following learning outcomes:
• To understand Op- Amp basics.
• Become familiar with the characteristics of an ideal and practical OP – AMP.
• To understand the concept of OP – AMP parameters like offset voltage, CMRR, Slew rate, concept of Virtual Ground.
• To become familiar with the operation of OP – AMP in Inverting and Non - Inverting Configurations.
• To understand the applications of OP – AMP as
1. Summing and Difference Amplifier
2. Differentiator and Integrator
3. As Zero crossing Detector, and
4. As active High Pass and Low Pass filters.
• To become familiar with number systems and codes, Logic Gates, Boolean Algebra Theorems.
• To understand the minimization techniques for designing a simplified logic circuit.
• To design a half Adder, Full Adder, Half-Subtractor, Full-Subtractor.
• To understand the working of 4 – bit Binary Adder/Subtractor.
• To understand the working of Data processing circuits Multiplexers, Demultiplexers, Decoders, Encoders.
• To become familiar with the working of sequential circuits like R-S flip flop, D flip flop and J-K Master/ Slave flip flop.
• To understand the Working and Applications of Shift Registers and Counters.
• To understand the working of D to A and A to D Convertors.

B.Sc 2nd Year: CORE COURSES

Semester III : Communication Electronics-I (Paper code –CEL304)

Practical -III : Communicaton Electronic Lab (Paper Code-CEP309)

Semester IV : Communication Electronics-II (Paper code –CEL404)

Course Objective

• This paper aims to describe the concepts of electronics in communication.
• Communication techniques based on Analog Modulation, Analog and digital Pulse

Modulation including PAM, PWM, PPM, ASK, PSK, FSK are described in detail.
• Communication and Navigation systems such as GPS and mobile telephony system are introduced.

Course Learning Outcomes

At the end of this course, students will be able to develop following learning outcomes:
• This paper aims to describe the concepts of electronics in communication. In this course, students will receive an introduction to the principle, performance and applications of communication systems.
• Students will learn the various means and modes of communication. They will gain an understanding of fundamentals of electronic communication system and electromagnetic communication spectrum with an idea of frequency allocation for radio communication system in India.
• They will gain an insight on the use of different modulation and demodulation techniques used in analog communication
• Students will be able to analyze different parameters of analog communication techniques.
• They will learn the need of sampling and different sampling techniques where they can sample analog signal.
• Students will learn the generation and detection of a signal through pulse and digital modulation techniques and multiplexing.
• They will gain an in-depth understanding of different concepts used in a satellite communication system.

• They will study the concept of Mobile radio propagation, cellular system design and understand mobile technologies like GSM and CDMA.

• Students will understand evolution of mobile communication generations 2G, 3G, and 4G with their characteristics and limitations.
• This paper will essentially connect the text book knowledge with the most popular communication technology in real world.

B.Sc 2nd Year: CORE COURSES

Semester III : Microprocessor (Paper code –CEL305)

Semester IV : Microcontroller (Paper code –CEL405)

Practical -IV :Microprocessor and Microcontroller Lab (Paper Code-CEP409)

Course Objective
• This paper introduces students with the architecture of microprocessor 8085 and microcontroller 8051.
• Here, students will learn about the 8085 programming, subroutines, Timing and control circuitry.
• Also, students will gain an exposure of 8051 I/O port programming and their

addressing modes.
• By the end of syllabus, students will have an introductory knowledge of embedded systems.

Course Learning Outcomes

• This is a course to familiarize/ introduce students to designing and developing embedded systems. It provides the students with an introductory coverage of embedded systems. The learning outcomes of the course are:
• Knowledge of the major components that constitute an embedded system.
• Study the architecture of a 8085 Microprocessor
• Assembly language programming essentials
• Understand what is a microcontroller, microcomputer embedded system.
• Description of the architecture of a 8051 microcontroller.
• Write simple programs for 8051 microcontroller in C language.
• Understand key concepts of 8051 microcontroller systems like I/O operations, interrupts, programming of timers and counters.
• Interfacing of 8051 microcontroller with peripherals
• Understand and explain concepts and architecture of embedded systems
• Implement small programs to solve well-defined problems on an embedded platform.

B.Sc 3rd Year: Semester V

Skill Enhancement Course II (Electronics)

Design and Fabrication of PCB [Paper Code 505(i)]

Course Objective:

• This course aims to cover details of PCB fundamentals, design and PCB Technology.

Course Learning Outcomes:

Students will be able to design PCB for basic analog and digital circuits. Everything from filters and amplifiers to clocked and combinatorial digital circuits.

Students will be able to leverage this knowledge to build and produce electronic products completely themselves.

Discipline Specific course-I

Electronic Instrumentation-I [Paper code –CEL503(i)]

Discipline Specific course-II

Electronic Instrumentation-II [Paper code 504(i)]

Practical-V (Electronics)

Electronic Instrument Lab [Paper code –CEP509 (i)]

Course Objective: Paper Code --- CEL-503(i) , 504(i) and CEP-509(i)

• This course aims to cover the basics of measurement and instrumentation.
• Various measurement instruments such as power supply, oscilloscope, multivibrators, signal generators are discussed in detail.
• At the end of syllabus, Students will develop an understanding of virtual instrumentation and transducers.

Course Learning Outcomes: Paper Code --- CEL-503(i) , 504(i) and CEP-509(i)

This course aims to provide an exposure to students on various aspects of instruments and their usage through hands-on mode. At the end of this course, students will be able to achieve the following learning outcomes:
• Course learning begins with the basic understanding of the measurement and errors in measurement. It then familiarizes about specifications of basic Measurement instruments and their significance with hands on mode.
• Covers explanation of Power supply, Filters, IC regulators and Load and line regulation.
• Explanation of the Specifications of CRO and their significance. Complete explanation of CRT.
• Students learn the use of CRO for the measurement of voltage (dc and ac), frequency and time period. Covers the Digital storage Oscilloscope and its principle of working.

• Students learn about the Multivibrators and able to make working circuits of Astable and monostable multivibrators.
• Covers Phase Locked Loop (PLL), Voltage controlled oscillators and lock-In amplifier.
• Covers the explanation and specifications of Signal and pulse Generators. Students should be familiarized with testing and specifications.
• Students learn about the Interfacing techniques, Audrino microcontroller & interfacing software.
• Hands-on mode Understanding and usage of Transducers.

B.Sc 3rd Year: Semester VI

Practical-V (Electronics)

Digital System Design Lab [Paper code –CEP609 (i)]

Discipline Specific course-III

Photonics Devices [Paper code –CEL603(iii)]

Course Objective

• The course is an introduction to the fundamentals of optoelectronics and principles of the optoelectronic devices operation. This course provides the background in optoelectronics, help students meet the demand of growing semiconductor optoelectronic industry and prepares them to advanced study and research in the semiconductor optics and optoelectronics devices.
This paper provides an insight on photonic devices such as Light Emitting Diodes, Semiconductor Laser, Laser diode, Photodetectors, Solar cell etc.
• Also, students will learn about LCD displays, their advantages over LED displays, evolution, elements, modes and configurations of optical fiber system.

Course Learning Outcomes

At the end of this course, students will be able to achieve the following learning outcomes:
• Develop understanding of application of fundamental laws of physics in such optoelectronics areas as telecommunications and power electronics for automation in industries.
• Develop understanding of the basic optoelectronic devices, light amplification and detection, lasers, modulators, and detectors.

• Be familiar with recent trends in optoelectronics.

Discipline Specific course-IV

Consumer Electronics [Paper code 604(iii)]

COURSE OBJECTIVE

- To sketch and describe operating principles of different types of microphones.
- To learn various video systems .
- To acquaint with various devices related to telecommunication system.
- To describe working of home and office gadgets likedesktop computer , laptop ,Washing machine, scanners,fax ,Photostat , Microwave ovens .
- To understand the working principles of various advance electronic gadgets like ATM, Dish washers etc

Course Learning Outcome : Upon the completion of this course, students will demonstrate the ability to:

- Understand electronics engineering concepts used in consumer electronics systems.
- Identify the need of preventive maintenance in various electronic appliances.
- Use different product safety, compliance standards and techniques associated with electronic products.
- Evaluate and analyze different electronic products and systems based on specifications
- Foster a desire to continue life-long learning.

****

DEPARTMENT OF ZOOLOGY

Program Specific Outcome of Three Years

B.Sc. Med. & B.Sc. Med. with Biotechnology

Three year B.Sc. Med. & B.Sc. Med. with Biotechnology program is formulated to develop scientific attitude among the students, so that they will gain and apply knowledge of scientific concepts such as Classification of organism, Developmental Biology, Comparative Anatomy, Human Physiology & Biochemistry, Genetics & Evolution, Aquaculture, Ecology and Pest Management.

PROGRAM B.Sc. Medical with Zoology, 3 Year Degree Course (CLASSWISE)

Program specific outcome

B.Sc.I

The students are familiarised with basic aspects of the subject. This is the very fundamental requirement on which they build their basic knowledge of the subject.

B.Sc.II

During this year as the students slowly climb the ladder of their career in this field. They are introduced to more advanced knowledge of various courses of Zoology alongwith 4 Skill Enhancement Courses.

B.Sc.III

Finally, the students made to learn and understand various aspects of Zoology on which they will build their career like in post graduation studies.

Course outcome: Department of Zoology

Semester-I

Course Code: ZOO 101L &102L

Course name : Animal Diversity I & II

Students will gain knowledge regarding the Classification of organisms and Biodiversity. Animal Diversity will cover basic concepts in evolution including the inference of relationships among species using modern techniques in genetics, the fossil record of animal life, the physiology of adaptation, aspects of animal behavior and communication, the ecology of organisms in relation to their habitats, the geographical distribution of animal life, and issues in the conservation of biodiversity.

Semester-II

Course Code: ZOO 201L & 202L

Course name: Vertebrate Comparative Anatomy & Developmental Biology I & II

Students will get basic knowledge regarding the Comparative Anatomy of Vertebrates, so that they can easily compare various systems of vertebrates. They will also get knowledge of Developmental Biology like early and late embryonic developmental and its control.

Semester-III

Course code: ZOO 301L & 302L

Course name: Physiology & Biochemistry I & II

The subject provides basic concepts of Human Physiology which helps the students to understand different aspects of physiology machinery of body. The study of Biochemistry will help the students to understand different metabolic reactions.

Semester-IV

Course Code: ZOO 401L & 402L

Course name: Genetics & Evolution I & II

The subject provides knowledge regarding Inheritance and heredity among organisms. The students will also get knowledge of Evolution, so that they came to know how present organisms evolved from their ancestors.

In this semester along with core courses some Skill Enhancement Courses will be added, so that students will inculcate the habit to become self dependent.

Course Code: ZOO 404 L

Course name : Apiculture

Through this course students will learn regarding various species of bees, their social organization, bee rearing, methods of extraction of honey & various types of bee diseases & their preventive measures. Moreover, the students will also learn about the products obtained from Apiculture industry. This Course will help the students in becoming self sufficient to set up their own industry.

Course Code: ZOO 405 L

Course name: Aquarium Fish Keeping

Aquarium keeping has become very popular in recent days. This course will help the students in setting up an aquarium fish farm as a cottage industry. Through this course students will learn regarding rearing of some fresh and marine water aquarium fishes so that they can maintain a healthy aquarium.

Course Code: ZOO 406 L

Course name: Medical Diagnosis

This is a very important course through which students will become able to recognise various diseases like Diabetes, Tuberculosis, Hepatitis etc. Moreover, they will also gather knowledge regarding PET, MRI, CT Scan, X Ray etc. They will also become perfect in preparing blood smear.

Course Code : ZOO 407 L

Course name : Sericulture

Students will learn regarding potential of mulberry and non- mulberry sericulture industry in different states. They will also learn regarding various types of silkworms, their rearing techniques & how to harvest and store cocoons. Moreover, knowledge of various silkworm diseases will also be given. In this way students will become self-sufficient in establishing a sericulture industry.

Semester-V

Course Code: ZOO 501L & 502L

Course name: Applied Zoology I & II

In this semester students will learn different application of subject zoology. The scope of applied Zoology is innumerable. It provides the knowledge of medicine, dentistry, Veterinary medicine, medical technology, nursing, zoological teaching, zoological research, agriculture, environmental science and conservation. Zoological Knowledge and theories are applicable to maintain health and to control the epidemic diseases.

Course Code: ZOO 504L & 505L

Course name: Aquatic Biology I & II

Aquatic biology is very important for our well being. Oceans and fresh water resources support the basic needs of human beings in several ways. Using advance technologies, aquatic biology helps us to improve our food deriving ability, water disposal & energy resources. So in this course students will gain knowledge of different aspects of aquatic biology.

Semester-VI

Course name: Reproductive Biology I & II

Course Code: ZOO 601L & 602L

In this course, students will investigate the biological processes of reproduction, including the endocrinology and physiology of male and female reproduction, puberty, lactation and menopause. They will gain an understanding of the determinants of fertility and infertility, and how reproductive biotechnology is used to overcome poor fertility. This course will also include a focus on the biology of normal and disordered pregnancy. Students will explore how reproductive biology impacts other aspects of health, exploring implications of early life exposures for later health and of the biology of reproductive cancers.

Course name: Insect, Vectors & Diseases I & II

Course Code: ZOO 604L & 605L

The course will focus on the insects and arthropods that impact human health as well as the associated diseases, such as malaria, dengue, Zika, Lyme borreliosis, Chagas disease, etc. On completion of this course, it will help the learners in improving vector borne disease surveillance, insect species identification (Taxonomy) and vector control skills.

****

DEPARTMENT OF GEOGRAPHY

Bachelor of Arts (B.A.)

Programme Outcomes:

Dayanand College offers a programme entitled of Bachelor of Art (B.A.) to the students with a facility of different combinations. The students can select any combination from the offered subjects like Geography, Economics, Psychology, Political Science, History, Sanskrit, Music, Mathematics and Public Administration. The opportunity of studying in their field of interest not only enhances their intellectual maturity but also help to secure their future prospects in terms of higher education, jobs or any other further skill development programme. Some programme outcomes are:

- A student can pursue the higher study in any particular subject after the successfully completion of the Bachelor of Arts.
- A graduate student has the sufficient potential for getting a good job in various dynamic fields like banking, education, archaeology, tourism, medical, public services, public prosecution, journalism, economics, politics etc.
- The degree of Bachelor of Arts with the study of social issues helps a person to be a 'human being' in real sense and offers an extra advantage to comprehend the society and its interaction with other aspects of the life. They can be good social workers.

Programme Specific Outcomes: BA Geography

Geography is a discipline bridging the social and natural sciences and includes the study of different spatial and social phenomena on the earth's surface. On one side, the subject is attached with natural science through the study of spatial characteristics of the various natural phenomena relating to the earth while on another side, it also deals with humanities or social science through the study about the human behaviour, processes and their interaction with physical space where they live. Geography, the study of the earth's surface, is an academic discipline that can lead to a career in mapping, planning, or environmental protection. Several colleges and universities offer undergraduate, master's, and doctoral degrees in geography, and many allow students a chance to focus in specific areas within this field, like global information systems (GIS) or environmental geography. Field study and lab work is often required in geography courses at all levels.

Course Outcome: Geography

Geography deals with the various aspects of the earth surface with understanding of its interrelationship with human being. It prepares a person to appreciate the diversity and investigate into the causes responsible for creating such variations over time and space. The discipline not only deals with human and nature complexities in present forms but also try to emphasise how they are changed and why they are existing with multiplicity over the physical space. A student of Geography studies to the variations in the phenomena over the earth's surface as well as the associations with the other factors which cause these variations. A geographer explains the phenomena in a frame of cause and effect relationship, as it helps not only in interpretation but also prediction of the phenomena. The reality is always multifaceted and the 'earth' is also multi-dimensional, that is why many disciplines from natural sciences such as geology, pedology, oceanography, botany, zoology and meteorology and a number of sister disciplines in social sciences such as economics, history, sociology, political science, anthropology, etc. study different aspects of the earth's surface. Due to the wide study area both in natural and social arenas, the subject is called as "**Bridge between Human and Physical Science**" and "**The World Discipline**" in real sense.

Semester	Course Name	Outcome
Semester I	**Geography of India (101)**	Geography of India is a key subject for any Competitive Examination. It is considered quite tough because of not only the huge syllabus but also the relevance with other subjects of Science which covers various dimensions of Geographical concepts. The offered course compiled a comprehensive study material on Geography of India with these major sections like General Geography Physical Features, Climate, Soil Vegetation, Drainage System, Economic Geography, Population, Agriculture, Trade and Transportation.
	Maps and Scales (102)	The study of Map and Scale is a part of Cartography or mapmaking is the study and practice of making maps. Map making involves the application of both scientific and artistic elements, combining graphic talents and specialised knowledge. It's study helps a student

		to be a good cartographer.
Semester II	**Physical Geography (Geomorphology) (103)**	The course is a foundation in the study of geography. It studies the physical character of the earth. Students learn about climate issues, weather patterns, landforms, soils, vegetation and water usage. Laboratory work is routinely part of any physical geography course. This class is often offered in the first year of study. Physical geography covers the Earth's climate, atmosphere, landscapes and natural processes including tectonic plates, glaciers, erosion and volcanoes study. It helps the students to make carrier in Disaster management and other related fields.
	Representation of Physical Features (104)	This practical field of geography refers to representation of physical features like valleys, slopes and landforms. Basically the study of the forms and features of land surfaces a makes the students able to understanding the relief aspects and offers a opportunity in the field of transport engineering like rail, road construction etc.
Semester III	**Physical Geography (Climatology) (201)**	This modern field of study is regarded as a branch of the atmospheric sciences and a subfield of physical geography. As a professional in this field, geographers are required to analyse scientific data and conduct research concerning climate and climate change (temporal and spatial) and make prediction regarding the future of Earth's climate and weather. It offers the job prospects to the student in various departments related to weather and climate.
	Representation of Climatic Data (202)	This practical work deals with the representation of climatic data Like rainfall, humidity, temperature, air pressure, isotherms, isohyets, isobars through various graphic methods like bar, line, climogarph, hythergraph etc. It develops the potential of students to analyze the climate data in more effective ways and open the scope with improving the graphical skill in the field of climatic studies.

Semester IV	**Human Geography (203)**	Human geography covers the distribution and interactions of societies across the globe. While there are few well-defined boundaries, human geography covers population growth, globalisation, farming, forestry, fishing, urbanisation, transportation and tourism. This branch of geography focuses on how the world's population impacts the globe and is required for further study in the field. Human geography courses also serve as an introduction to the many computer programs, satellite systems and other technologies used in the field. It offer the opportunities for a student in a big organisations like Census of India, National Rural Health Mission, Population Bureau etc.
	Map Projections (204)	Map projection is the method of transferring the graticule of latitude and longitude on a plane surface. It can also be defined as the transformation of spherical network of parallels and meridians on a plane surface. The study of this branch makes the scope in the field of cartography because a student who is well aware about the types and utility of projection can prepare a map with more quality.
Semester V	**Economic Geography (301)**	Economic geography is the subfield of human geography which studies economic activity. Economic geography takes a variety of approaches to many different topics, including the location of industries, economies of agglomeration, transportation, international trade, development, real estate, gentrification, ethnic economies, gendered economies, core-periphery theory, the economics of urban form, the relationship between the environment and the economy and globalization. It helps the students for why the economic activities differ with geographical space. It develops the student's potential for understanding the economic aspects within or across the geographical boundaries.
	Distribution Maps and Diagrams (302)	Distribution maps shows the distribution of various geographical aspects like temperature, rainfall, population, vegetation, soil, towns, density etc. according to the data of these variables. This is useful to

		explain the distribution of a variable in a particular region.
Semester VI	**Introduction to Remote Sensing, GIS and Quantitative Methods (303)**	Quantitative methods have been an integral part of human geography since the quantitative revolution of the 1950s. It is a field of spatial analysis that serves as a unifying methodology for social science in general. A student in geography can expect to be taught and to use quantitative methods in their area of interest. Typically these methods include GIS, descriptive statistics and inferential statistics. Geographic information systems, better known as GIS, have grown in popularity over the past few years and are frequently used in mapping and cartography. Students in this class learn about current applications of GIS, data collection and mining, digital mapping, spatial analysis and usage of GIS in public policy. Students also use computer programs, such as ArcView, that are routinely used in GIS development. Studies of quickly changing phenomena such as floods, draught and forest fires, etc. Remote sensing satellites provide a variety of information about the earth's surface.
	Remote Sensing and Field Survey Report (304)	The study of Remote Sensing prepares a student to explore the prospects in field of Geo-informatics. At present, this is the most preferred branch of geography which provide the required information in a more smart and cost-effective manner. Trained students can work in both government and private sector as RS&GIS specialist. The study of field survey establishes a relation with society and makes a surveyor curious for drafting a better planning.

M. SC. GEOGRAPHY

Program Outcomes:

A geography degree provides the knowledge and skills to begin a variety of rewarding careers. Geographers work as urban planners, GIS technicians and analysts, disaster preparedness planners, teachers, environmental scientists, remote sensing analysts, transportation planners, demographers, hydrologists and in a variety of other areas. Students who complete Geography courses will examine the spatial organization of physical features and human activities at a variety of spatial scales from local to global. Students will be able to locate features on the surface of the earth, explain why they are located where they are, and describe how places are similar and/or different. Students will also examine human interactions with the environment and describe how physical and cultural landscapes change through time. Students completing physical geography courses will be able to describe the processes that drive earth's climate, create landforms, and govern the distribution of plants and animals. Students completing human geography will analyze and describe cultural phenomenon such as population, development, agriculture, language, and religion. It enhances the ability of following:

1. Ability of Problem Analysis: Student will be able to analyses the problems of physical as well as cultural environments of both rural and urban areas. Moreover, they will try to find out the possible measures to solve those problems.

2. **Conduct Social Survey Project**: They will be eligible for conducting social survey project, which is needed for measuring the status of development of a particular group or section of the society.

3. Individual and Teamwork: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

4. Application of Modern Instruments: Students will be able to learn the application of various modern instruments and by these; they will be able to collect primary data.

5. Application of GIS and modern Geographical Map Making Techniques: They will learn how to prepare map based on GIS by using the modern geographical map-making techniques.

6. Critical Thinking: Geography enhances the critical thinking skill. Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to

which these assumptions are accurate and valid, and looking at our ideas and decisions from different perspectives.

7. **Development of Observation Power**: As a student of Geography Course, they will be capable to develop their observation power through field experience and in future, they will be able to identify the socio-environmental problems of a locality.

8. Development of Communication Skill and Interaction Power: After the completion of the course, they will be efficient in their communication skill as well as power of social interaction. Some of the students are being able to understand and write effective reports and design credentials, make effective demonstrations, and give and receive clear instructions.

9. Understand Environmental Ethics and Sustainability: Understand the impact of the acquired knowledge in societal and environmental contexts, and demonstrate the knowledge of need for sustainable development.

10. Self-directed and Life-long Learning: Acquire the ability to engage in independent and life-long learning in the broadest context social, environmental and technological changes.

Program Specific Outcomes: Geography

The M.A. / M.Sc. in geography program offer students the opportunity to advance their career aspirations through advanced study in the classroom and in the field. The program in geography is tailored to meet the students' specific educational, research and professional goals in mind. It focuses on spatial studies, qualitative as well as quantitative, and emphasizes on human-environment relationship.

1. Design and conduct independent research in their chosen field in the discipline and demonstrate knowledge of concepts, methods, and theories designed to enhance understanding of the natural world and human society.
2. Communicate the results and significance of their research in both written and oral form
3. Evaluate how historical events have been influenced by, and have influenced, physical and human geographic factors in local, regional, national, and global settings.

4. Examine social and environmental processes, with a particular focus on space and place, critical theory, practical application, analysis and intervention in chosen field within the discipline of Geography.
5. Evaluate causes, consequences, and possible solutions to persistent, contemporary, and emerging global issues and follows established ethical guidelines for research and teaching.
6. Have an in-depth understanding of and mastery of the literature in, at least one particular geographic subfield.
7. Classify processes of environmental change and evaluate the relationship between human beings and their surroundings, bringing to bear knowledge from many disciplines.
8. A geographer has better job opportunities in government departments, Cartographer, Researcher, Teacher/Professor, Competitive Examinations, Government employer, GIS specialist, Climatologist, Transportation Manager, Surveyor, GPS Surveyors.

Course Outcomes: Geography

Semester	Course Name	Outcome
Semester I	**Climatology (GEOG-101)**	The aim of this course is to enable students to understand the basic concepts of climatology and weather events at planetary, synoptic and regional scale. After completing this course students will have gained the essential background for further studies in weather and climate. Particular objectives of the course are: 1. To provide students with a basic understanding of climatology. For example, students should be able to explain the role of the balance between solar and terrestrial radiation in the formation of weather patterns, the causes of atmospheric instability, describe weather phenomena associated with warm, cold and occluded fronts atmospheric conditions associated with the formation of storms, hurricanes and tornadoes. 2. Students to be able to interpret the general characteristics of weather maps, and

		further to become familiar with the temporal and spatial representation of climatic variables (e.g. temperature, atmospheric pressure).
	Geography of India (GEOG-102)	India is a country with diversity in landscape, vegetation, soils, drainage network, economy, population characteristics and culture. It is rich in resources and has got many minerals and power resources, which are the main assets of the country and are also exported. Therefore it becomes immense important to make the students know about their country. After the completion of the course, students will be able to 1. Identifying and explaining the Indian Geographical Environment, from global to local scales. 2. Applying geographical knowledge to everyday living. 3. Showing an awareness and responsibility for the environment and India. 4. Evaluating the impacts of human activities on natural environments special reference to India.
	Economic Geography (GEOG-103)	This course is an introduction to the theories, concepts, methods and data used by geographers to analyze the location of economic activities, the spatial organization of economic systems, the human use of the earth's resources and environmental issues. After the completion of the course, students will be able to 1. Understand the causes of uneven geographical development and the global phenomena of increasing inequality. 2. Explore the applications of economic geography, such as the localization of multinational corporations, how do the global firms operate in the global scale, the economic crises, and the causes of poverty, etc.

	Statistical Methods in Geography(GEOG-104)	Statistics is the art and science of finding patterns in data. Quantitative methods have been increasingly part of geographic research and a thorough understanding of elementary statistics is essential for work and development in this field or other related sciences. Students will learn how to understand and apply the various basic and spatially oriented statistical methods to geographic data. After the completion of the course, Students will be able to 1. Make a rational choice amongst listed various statistical methods, keeping in view the nature of data and purpose of study. 2. Demonstrate understanding of basic concepts of probability and statistics embedded in their courses. 3. Students shall know how to organize, manage, and present data.
	Cartographic Method in Geography (GEOG-105)	As map making is the sole purpose of geographers, by going through this paper students can acquire good knowledge about different procedure of map making and various projection system of map making by developing broad knowledge about latitude, longitude, meridians, parallels etc. Students will be exposed to cartographic information and will develop map reading skills, ranging from the simple reckoning of locations to the understanding of the spatial structure and process that maps represent. In addition to the ability of understanding and reading maps, students will develop cartography skills and will be able to create maps on their own.

Semester II	**Geomorphology (GEOG-201)**	This paper helps students in understanding about the different landforms which is formed on the surface of the earth and the forces related with the formation of landform. Students can acquire an idea regarding different topographic condition including fluvial, wind topography and glaciated topography. Students will understand the fundamental concepts of spatial interaction and diffusion, which explain how human activities are influenced by the concept of distance. After the completion of the course, Students will be able to 1. Identifying and explaining the planet's human and physical characteristics and processes, from global to local scales. 2. Evaluating the impacts of human activities on natural environments.
	Population Geography(GEOG-202)	Study of population is an essential component in planning of various human related issues. This course introduces the spatial distribution of population with causative factor. It also deals with various theories and concepts related with population. Population Geography also deals in population policies in developed & developing countries. After the completion of the course, Students will be able to Understand the distribution of population, population distribution and its problems, population dynamics and understand population policies & its importance.
	Regional Development and Planning (GEOG-203)	The objective of the course is to develop an understanding of the processes, pattern and practice of regional development especially in India. This will expose students to development theories and strategies and planning concepts and broaden their perspective regarding regional disparities in India and the need of regional planning to overcome it. After completion of this course student shall develop understanding about regional development processes, models adopted for

		development, regional disparities, challenges and strategies to overcome the disparities.
	Agricultural Geography (GEOG-204)	This field includes the natural, economic, and social interrelationships associated with the transformation of the earth for plant cultivation and animal husbandry with particular emphasis on their spatial characteristics. This course helps students to 1. Understand the basic characteristics of physical environments for agriculture in tropical and temperate zones. 2. Recognize the relationship between physical environments, culture, and political economy in the historic development of agricultural systems. 3. Identify the basic components of farming systems and understand their interrelatedness. 4. Explore linkages between local and global agricultural change in the world's food system. 5. Investigate current issues related to food and agricultural geography.
	Interpretation of Toposheets and Morphometric Analysis (GEOG-205)	This paper helps students to gain knowledge about topographical maps and apply this knowledge in ground surface. The study of different morphometric parameters helps students to understand morphological characteristics of any region. Students will get knowledge about different linear, Areal and Relief aspects of streams e.g. stream ordering, stream numbering & length, drainage frequency & density etc. This course shall provide the students an opportunity to practice the use of tools and methods applied in morphometric analysis.
Semester III	**Geography and Ecosystem (GEOG-301)**	The purpose of the course is to explain the students various dimensions of the ecosystems, their spatial connotation, anthropogenic interventions and resultant impacts, international environmental summits and legal provisions for

		environment protection. The students will get exposed to the concept of ecosystem, its various processes, biomes, anthropogenic interventions and consequential impacts and world community's efforts to address such problems.
	Field Methods in Geography (Theory) (GEOG-302A)	The basic objective of the course is to introduce the students to ways and methods of collection of socio-economic data from the field. The students shall learn the techniques of collection of socio-economic data, processing and interpretation of acquired information and preparation of project report.
	Report Based on Field Survey(Practical) (GEOG-302B)	The objective of the course is to teach the techniques and tools used in the analysis of socio-economic data by applying them in the data collected through field survey and drawing inferences and interpretations. The writing of the project report shall train the students in analysis and interpretation of socio-economic data obtained from the field.
	Urban Geography(GEOG-303-i)	The objective of this course is to enlighten the students about the basics of urban geography, world urbanization pattern, morphology and land use of cities, social- economic, functional and spatial dimensions of urban centres and their various theoretical conjectures. It aware the students to urban concepts, urban economic base, urban functions, urban core-periphery interaction and various theories and models.
	Geography and Disaster Management(GEOG-304-iv)	The objective of this stream is to prepare students for efficient and cost-effective management of disasters and hazards whether they are natural or man-made.
	Introduction to Remote Sensing (Theory) (GEOG-305A)	The objective is to provide exposure to students regarding use of new techniques in obtaining geographical data. It shall introduce the students to the processes of satellite remote sensing data acquisition and the application of digital information in real time mapping. The course will equip the

		students with state of art concepts and methodologies of remote sensing technology.
	Introduction to Remote Sensing(Practical) (GEOG-305B**)**	The objective is to enable the students to understand and analyze aerial photographs and different satellite imageries. It shall equip students with handing instruments, tools and techniques of aerial photo interpretation and satellite imageries.
Semester IV	**Geographical Thought (GEOG-401)**	The objective of this course is to introduce the students to the history, philosophy and methodology of geography. The postgraduate students of geography must have an idea about the course of development of the discipline in terms of changes in its philosophy and methodological innovations. The course would appraise the students about the development of geography as a scientific discipline. It would help them in assessing the positive aspects and shortcomings of the discipline.
	Hydrology and Oceanography (GEOG-402)	The objective is to introduce the students the basic concepts of hydrology and oceanography such as hydrologic cycle, water balance and movement of oceanic water, salinity distribution etc. It will acquaint the students with the basic concepts of hydrology and oceanography.
	Regional Geography of India with Special Reference to Haryana (GEOG-403-i)	The objective of the paper is to give an understanding about the regional structure of India with a focus on Haryana. This paper also deals with physical, economic and socio-cultural diversities in the country and Haryana. The paper shall enhance the knowledge of the students regarding the regional diversities of India and they also get to know about the physical, economic and socio-cultural diversities in the state of Haryana.
	Urbanization in India (GEOG-404-v)	The objective of the course is to make the students to understand the evolution of urban settlements in India, their

		processes, current status and recent trends, contemporary urban issues and policy framework. Students should be acquainted with the evolution, processes and pattern of urbanization in India, its contemporary urban issues and urban policy.
	Fundamental of Geographical Information System (Theory)(GEOG-405A)	The objective of the course is to provide exposure to students to the field of GIS and modern techniques of making maps, handing spatial and non spatial data electronically and the concepts of data acquisition using GPS. The students shall acquire the skills in managing spatial and non spatial data electronically and get acquaintance to concepts related to GPS.
	Fundamental of Geographical Information System (Practical)(GEOG-405B)	The objective of the course is to provide training to students in acquiring and managing digital geographical data obtained from maps, topographical sheets, and satellite imageries. It gives students experience of digital storage, manipulation and analysis of data and its presentation using GIS software. The course shall fully equip the students with the techniques and methodologies of Geographical Information System, Geographical Positioning /systems in preparing the maps and presentation of information in GIS environment.

****

DEPARTMENT OF PSYCHOLOGY

PROGRAMME LEARNING OUTCOME:

The learning outcomes that a student WILL be able to demonstrate on completion of a degree level programmer may involve academic, behavioral and social competencies as described below –

Scholastic Competence

• Disciplinary information and strategies including information examination and PC education.

• Basic expert abilities relating to mental testing, appraisal and advising.

• Ability to utilize aptitudes in explicit regions identified with picked specialization (for example psychological, clinical, advising, wellbeing, and instructive, social, network).

• Ability to relate and interface ideas with individual encounters and utilizing basic thinking.

• Curiosity and capacity to detail brain research related issues and utilizing fitting ideas and techniques to comprehend them.

• Ability to utilize different e-assets and web-based media and haggling with mechanical challenges.

• Articulation of thoughts, logical composition and genuine revealing, compelling introduction aptitudes.

Individual and Behavioral Competence

• Self-advancement, wellbeing and cleanliness, self-guideline aptitudes.

• Developing positive ascribes, for example, sympathy, empathy, social interest, and responsibility.

• Developing social and chronicled reasonableness especially indigenous customs, socio cultural setting and variety.

• Having conversational ability including correspondence and powerful association with others, tuning in, talking, and observational aptitudes.

• Appreciating and enduring alternate points of view.

• Ability to work both freely and in gathering and managing customers what's more, partners, learning the specialty of exchange.

Social Competence

• Collaboration, participation and understanding the intensity of gatherings and network.

• Analyzing social issues and understanding social elements.

• Gender sharpening including sexual orientation regard, regard for one's own sex, managing with sex disarray and sexual orientation personality issues.

• Ethical, social and environmental duty including recognizing the poise and presence of others, familiarity with social request, learning of qualities and social concern reflected through enactment of social partakes (for example town overviews, visiting mature age homes and investing energy with older, halfway house network administration and so on)

• Moral and moral mindfulness and thinking including objective and impartial work mentality, maintaining a strategic distance from dishonest practices, for example, information creation and literary theft, watching implicit rules, regarding licensed innovation rights and monitoring the suggestions and moral worries of examination considers.

Graduation in Psychology prepares students to apply skills in Schools, Mental Health Agencies, Govt. Industry and other settings- where they may provide assessment, consulting, counseling and other services to the citizen of the region.

It is also a great choice as a optional paper in Higher Competitive Exams.

1. **Psychology** has emerged as a multifaceted discipline and includes many sub-fields of study such areas as human development, sports, health, clinical, social behavior and cognitive processes.
2. It touches almost every aspect of our lives and studying it would definitely give students an insight into why people behave the way they do , what makes them react in certain way and how does environment bring changes in one’s opinions , ideas ,decisions and behavior.
3. Diversified challenges and opportunities in the emerging world have cost a new shift in the field of Psychology for exploration.
4. Psychology Helps to better understand the mind /body, Sociocultural, inter and intra personal interactions with the scientific methodology.
5. We aim at providing intensive and comprehensive knowledge of psychology as a subject.

Course Out Come: At graduation level we offer six papers.

1. **Course Name: INTRODUCTION TO PSYCHOLOGY:**
   Course Code: PSY-101

This paper gives comprehensive knowledge of Psychology helping them to understand the basic concept, principles, terminology and important trends like Emotion, Motivation, Intelligence and Personality with theoretically.

2. **Course Name: EXPERIMENTAL PSYCHOLOGY**
   Course Code: PSY-102

In Psychology, experiments are considered as spine of the Methodology to study. Psychology encourages comprehending the system and fundamental idea of investigation. Trial techniques, perception and review strategy are shrouded in the course which is extremely useful to students. This course content gives information about various exploratory strategies in different fields to the understudies.

3. **Course Name: DEVELOPMENTAL PSYCHOLOGY**
   Course Code: PSY-201

Throughout our lives, we go through various vital stages of development, in which each individual grows and adapts in some standardized and some unique ways. The field of development psychology is primarily focused on the study of human development through these vital stages, and the discovery of new and better ways for people to maximize their potential in every stage of development. The course hereby will describe, explain and to optimize development specifically.

4. **Course Name: SOCIAL PSYCHOLOGY**
   Course Code: PSY-202

Social psychology is the scientific study of how people's thoughts, feelings, beliefs, intentions and goals are constructed within a social context by the actual or imagined interactions with others. It deals with the factors that lead us to behave in a given way in the presence of other, and look at the conditions under which certain behavior/actions and feeling occur.

In this course: Topics examined will include: the self concept, social cognition, attribution theory, social influence, group processes, prejudice and discrimination, interpersonal processes, aggression, attitudes and stereotypes and many more.

5. **Course Name: PSYCHOPATHOLOGY**
   Course Code: PSY-301

Psychopathology course hereby will be aiming to make students understand and learn the psychological pathologies such as depression, anxiety, schizophrenia etc. This course will also help students to understand the diagnostic criteria and treatment planning's for people affected with the same. Study of abnormal behavior may be of great value in bettering individual adjustment and in reducing the great amount of misery arising out of mental illness and maladjustment in modern society as a whole.

6. **Course Name: APPLIED PSYCHOLOGY**
   Course Code: PSY-302

Applied psychology uses our understanding of human behaviors, affects, emotions, motivations, and disorders to effect measurable changes in patient mental health. While this branch of psychology has a research component, its primary thrust is to observe and evaluate patients, then use those results to directly impact patient care. Applied psychology is, therefore, subjective, using the principles of psychology and applying them to specific situations on a case-by-case basis. Now this course will aid students in the process of learning about various aspects of psychology a whole and will give them the ability to solve problems within human behavior, self management to team work abilities to more refine skills.

7. **Course Name: DEVELOPMENTAL PSYCHOLOGY**
   Course Code: PSY-201

Throughout our lives, we go through various vital stages of development, in which each individual grows and adapts in some standardized and some unique ways. The field of development psychology is primarily focused on the study of human development through these vital stages, and the discovery of new and better ways for people to maximize their potential in every stage of development. The course hereby will describe, explain and to optimize development specifically.

8. **Course Name: SOCIAL PSYCHOLOGY**
   Course Code: PSY-202

Social psychology is the scientific study of how people's thoughts, feelings, beliefs, intentions and goals are constructed within a social context by the actual or imagined interactions with others. It deals with the factors that lead us to behave in a given way in the presence of other, and look at the conditions under which certain behavior/actions and feeling occur.

In this course: Topics examined will include: the self concept, social cognition, attribution theory, social influence, group processes, prejudice and discrimination, interpersonal processes, aggression, attitudes and stereotypes and many more.

9. **Course Name: PSYCHOPATHOLOGY**
   Course Code: PSY-301

Psychopathology course hereby will be aiming to make students understand and learn the psychological pathologies such as depression, anxiety, schizophrenia etc. This course will also help students to understand the diagnostic criteria and treatment planning's for people affected with the same. Study of abnormal behavior may be of great value in bettering individual adjustment and in reducing the great amount of misery arising out of mental illness and maladjustment in modern society as a whole.

10. **Course Name: APPLIED PSYCHOLOGY**
    Course Code: PSY-302

Applied psychology uses our understanding of human behaviors, affects, emotions, motivations, and disorders to effect measurable changes in patient mental health. While this branch of psychology has a research component, its primary thrust is to observe and evaluate patients, then use those results to directly impact patient care. Applied psychology is, therefore, subjective, using the principles of psychology and applying them to specific situations on a case-by-case basis. Now this course will aid students in the process of learning about various aspects of psychology a whole and will give them the ability to solve problems within human behavior, self management to team work abilities to more refine skills.

****

DEPARTMENT OF

PHYSICAL EDUCATION

Smt. Surjeet kaur
Head, department of Physical Education

Programme Outcome: Department of Physical education

Health and physical education offers students the opportunity to not only be physically active, but it helps students to build confidence, to learn different movement skills and its helps them to work as a team. Health and physical education will help our students to live longer and healthy lives. It gives a wide range of job opportunities to the students as follows:

1. Astt. Professor
2. Sports Manager
3. Physical Education Trainer
4. Health educator
5. Coach
6. Fitness Instructor
7. Yoga Trainer
8. Gym Trainer
9. Sports Trainer

Thus this course is important for the holistic growth of students.

Course Outcome :-

Course : Health and physical Education HPE-101

The course aims at to get students acquainted with health and physical education. It helps the students to understand meaning, aim, objective and importance of physical education in modern society .It also helps in understanding the importance of Health & Hygiene, Introduction of Yoga. Students learn about the Human Anatomy and Physiology.

Course: - Health and Physical education HPE-103

This course aims at the introduction, adjective and scope of health Education. Students understand the importance of health education through this. It provides information about first Aid and common injuries. This course is beneficial in understanding the importance of physical fitness and human anatomy and physiology.

Course:-Health & Physical Education HPE-201

With the help of this course students understand the concept of safety education and importance of the safety. Here the students learn about type, causes and prevention of sports injuries. Students also learn about common diseases like HIV/AIDS, typhoid, malaria, asthma and sinuses. This course is also important in understanding the concept and importance of Blanced Diet. It is also based on the scientific understanding of anatomy, circulatory system and physiology of body system.

Course: - Health & Physical Education HPE-203

This course aims at importance of warming up and cooling down in sports. It helps the students to understand the physiological aspects of warming up and cooling down. During this course students also learn about the psychological aspects of physical education, need and importance of sports psychology. The students get acquainted with the basic concepts of psychology. It also covers the major sports events. It helps students to understand the structure of respiratory organ, effect of exercise on respiratory system and terminology of respiration.

Course: - Health & Physical Education HPE-301

Here students of Health & physical education learn about the concept, types and importance of motivation and socialization. The concept of motivation is important for a sports person in life and in field. Through socialization students understand the importance of team work. Students also learn about sports training, types of training and doping. Here in the course of anatomy and

physiology students learns about the structure, mechanism and effect of exercise on digestive system.

Course: - Health & Physical Education HPE-303

The objective of this course is to help students to understand the concept of growth and development, stage principles and factors influenancing growth and development. The Students learns the concepts of organisation and administration in sports. Here, students also get knowledge about different type of posture. This course is also aimed at the importance of good posture, postural deformities. It helps students to get knowledge about precautions and remedies for postural deformities.

****

DEPARTMENT OF HISTORY

Program Outcomes

Bachelor of Arts

PO 1. The students acquire knowledge in the field of social sciences, literature and humanities which make them sensitive and sensible enough.
PO 2. The B.A. graduates will be acquainted with the social, economical, historical, geographical, political, ideological and philosophical tradition and thinking.

PO 3. The program also empowers the graduates to appear for various competitive examinations or choose the post graduate programme of their choice.

PO 4.The B. A. program enables the students to aquire the knowledge with human values framing the base to deal with various problems in life with courage and humanity.

PO 5. The students will be ignited enough to think and act over for the solution of various issues prevailed in the human life to make this world better than ever.

PO 6. Programme provides the base to be the responsible citizen.

Program outcomes
Department of history

1. Understand background of our religion, customs institutions, administration and so on.
2. Understand the present existing social, political, religious and economic conditions of the people.

3. Analyze relationship between the past and the present is lively presented in the history.

4. Develop practical skills helpful in the study and understanding of historical events.

They:

(a) Draw historical maps, charts, diagrams etc.

(b) Prepare historical models, tools etc.

5 .Develop interests in the study of history and activities relating to history. They:

(a) Collect ancient arts, old coins and other historical materials;

(b) Participate in historical drama and historical occasions;

(c) Visit places of historical interests, archaeological sites, museums and archives;

(d) Read historical documents, maps, charts etc.

(e) Play active roles in activities of the historical organizations and associations; and

(f) Write articles on historical topics.

6. The study of history helps to impart moral education.

7. History installs the feeling of patriotism in the hearts of the pupils.

P**ART-I (SEMESTER-I)**

Paper-HIST (101) Ancient India (From Earliest Times To Gupta Age)

Students of history will acquire knowledge regarding the primitive life and cultural status of the people of ancient India. They can gather knowledge about the society, culture, religion and political history of ancient India as well. They will learn about the origin of the Indian empire, trade and urbanizations of ancient civilization, like Harappan civilization, Vedic civilizations, later Vedic civilizations etc. How to develop Paleolithic, Neolithic and Chalcolithic cultures. Students also learn about Harappan Civilization, Vedic Culture, Janism, Buddhism, Mauryan, Post Mauryan Age And Gupta Period.

PART-I (SEMESTER-II)

Paper- HIST (102) History of India II (600 - 1526 AD)

They can achieve knowledge how to develop Indian feudalism and evolution of the political structures of early-medieval north and south India. They can learn how the conquering of Islam had initiated in India and had transformed of Indian culture, society, religion and agrarian structures under the Islam power of medieval India. They will achieve knowledge about the religious and cultural changing scenarios after the advent of the Islam in India. They will gather knowledge the Sultanate of Delhi.

PART-II (SEMESTER-III)

Paper- HIST (201) History of India III (1526 - 1857 AD)

They acquire knowledge towards the Struggle for Empire in North-Western India and foundation of the Mughal Rule in India. Students will learn about the Mughal Indian society, economy and culture after consolidation of the Mughal rule India. They will learn about how the Regional Powers had been raised in different parts of India after downfall of the Mughal Empire of Delhi. They can gather knowledge to the downfall of the Mughal Empire only lack of unity among the Mughal courtiers and resulted to raise provincial kingdoms in Bengal, Hyderabad, Ayodhya, Mysore and Maratha in Western India.They learn how to establish the Company's Rule in India

after the battle of Plessey and buxar. They will learn towards the land revenue systems under the company's rule in India at the same time. They will learn about the uprising of 1857.

PART-II (SEMESTER-IV)
Paper-HIST (203) Indian National Movement(1858-1964)
They will learn the real historiography of Indian Nationalism; Birth of Indian National Congress, The Moderates and the Extremists, Partition of Bengal, the Swadeshi movement in Bengal in 1905. They can acquire knowledge how to rise of Gandhis power in Indian politics and his activities towards the freedom like, Rowlatt Satyagraha, Khilafat and Non-cooperation movement, The Swarajya party, Poona Pact, Civil Disobedience Movement, Quit India Movement. They also learn how to raise communal politics and opposition politics on the eve of the freedom movement in India and on partition in India.

PART-III (SEMESTER-V)
Paper- HIST (302) (Rise of Modern World)

Students of history will learn about the rise of the modern world and transition the society and economy from feudalism to capitalism. They will learn how to rise of Renaissance in Italy and spread of humanism in Europe and results of the European Reformation in the 16th century and Shift of economic balance from the Mediterranean to the Atlantic, Commercial Revolution, Influx of American silver and the Price Revolution. They gathered knowledge towards the emergence of European state system like Spain, France, and England. They will also learn about Agriculture And Industrial Revolution.

PART-III (SEMESTER-VI)
PAPER : HIST (304) (Modern World)

This paper focused on the great French Revolution in 1789. Students come to know about the emergence of Napoleon Bonaparte in Europe and his expansion, consolidation, downfall. Vienna Congress, Metternich, Bismarck and his diplomacy, system of alliances, 1917 Russian Revolution, Fascism, Nazism and the origin of World War II all these important issues are incorporated in this paper.

****

DEPARTMENT OF DEFENCE STUDIES

Programme specific Outcomes

In the Contemporary world Defence Study is a multidisciplinary subject which includes the study of various aspects of global and National Security. The programme also covers the Military Conflicts, Terrorism, Economics, International Relations, political and Psychological Aspects vis a vis the origin and evolution of warfare, various instruments and measures of nuclear proliferations and establishment of peace. It also covers the Study of current National and International Geo-Strategic, Geo-Political Environment in contemporary and Historical context.

LO1:- Create a good understanding of the impact of science and technology on warfare and also discuss basic concept and theories of nuclear warfare and deterrence.

LO2:- Impart students with knowledge of various aspects of military psychology related to military leadership, human resource management and warfare.

LO3:- Describe the various issues related to Study of war, nature, its evolution, features, principles, strategies and tactics of warfare.

LO4:- The students will understand the concept of National Security, National Defence, theories of International Relations and gain knowledge regarding various regional and international strategic issues in a comprehensive Global Scenario.

LO5:- To Analyze the Civil Military relations of India with reference to higher Military Organization, National Security council and Comprehensive Study of Defence budget and Defence procurement of India.

B.A. Defence Studies

Course Outcomes

B.A.^{1st} Year (1st Sem)

Paper-1: DEFS 101-Introduction of Defence Studies

- Introduce the students to the Concept, Scope and importance of Defence Studies.

- Explain the relation of subject with various disciplines
- Introduce the students to the Concept of war, strategy and tactics.
- Students will be able to learn about atomic, chemical and biological warfare.
- Make the students able to analyze the defence mechanism.
- Rank structure of Indian armed forces.

B.A.^{1st} Year (2nd Sem)

Paper-1: DEFS 103 : Military Psychology

- Students will be able to learn about military psychology – Its Development, Function and Significance.
- Provide a deeper understanding of motivation, morale and fatigue during war and peace.
- Make the students able to learn about psychological warfare, military leadership, discipline and man-management.
- To provide knowledge regarding tools of Psychological Warfare, importance, advantage and kind of leadership in Armed Forces.

B.A.^{2nd} Year (3rdSem)

Paper: DEFS (201): National Security-I

- Familiarize the students about the concept & Essentials of National Defence & Security.
- To provide the knowledge about India's Defence, Nuclear and Foreign policies.
- Students will be able to understand the civil defence, civil military relations, military Aid to civil administration and India's Defence problems.
- Increase awareness among the students about the War Finance, Cost of war and economic mobilization in war.

B.A.^{2nd} Year (4thSem)

Paper: DEFS (203): National Security-I

- To provide the knowledge about India's Maritime Strategy, Naval Security and Foreign Policy.
- Increase awareness among the students about India's Security Threats (Internal & External) and International Strategic Environment in Post Cold War Period.
- Students will be able to understand the working of National Security Council of India.
- Provide a deeper understanding of India's relations with its neighbours and major powers.
-

B.A.^{3rd} Year (5thSem)

Paper: DEFS 301: Science And Technology In War

- Increase awareness among the students about electronic warfare, cyber warfare and importance of science & technology in war.

- Familiarize the students about DRDO and its role in defence production.
- To provide the knowledge about science and technology policy of India & revolution in military affairs.
- Acquire knowledge on how significant the role of science and technology is to Society and to National Security.
- Understanding the concepts and applications of Electronic Warfare, Space and Ballistic Missile Defence (BMD) in Warfare.

B.A.^{3rd} Year (6thSem)

Paper: DEFS 303: Military Geography

- Introduce the students to the basic concept of Geo-Strategy, Military Geography, and India's Geo Strategic & Maritime interest in Indian Ocean.
- Familiarize the students with Geographical Information System (GIS) and Global Positioning System (GPS).
- The students will be encouraged to understand about Disaster Management, Conflict Resolution and Peace Building Measures.
- To provide the knowledge of Remote Sensing, Aerial photography – Its Scope, Significance And Applications.
- Increase awareness among the students about Disaster Management – Concept, Significance, Types and National Disaster Policy of India.

****

DEPARTMENT OF ECONOMICS

BACHELOR OF ARTS WITH ECONOMICS

PROGRAMME OUTCOMES (POs) for UG course of Economics

1- **To develop skills in graduate students so that they are able to acquire theoretical and practical knowledge about economics, economy, economic behavior, economic policies and economic institutions and economic problems and their solutions.**
2- **To inculcate ability in students for critical thinking, lateral thinking about economic phenomena, problems and policies so as to create professional potential in them**
3- **To create awareness on ethical issues, good business practices, and ecology-economics interface.**
4- **To development ability in youth for understanding basic economic rationality and effective communication skills.**
5- **To prepare youth for career in teaching, industry, government organizations and self-entrepreneurship**
6- **To make students aware of natural resources, sustainable use and environmental issues.**

PROGRAMME SPECIFIC OUTCOMES (PSOs) for UG course in Economics

PSO1: demonstrate the knowledge and understanding of economic science i.e vital processes of economy, consumer and producer behavior at micro level and macro-level

PSO2: critically think and correlate the economics knowledge with decision-making with regard to economic planning and economic policies, understanding of conflicts, tradeoffs, and welfare implications of economic measures to improve the quality of life in person as well as of community.

PSO3: demonstrate an understanding of the principles, methods of economic analysis in static and dynamic terms, analysis of economic data

PSO4: concise and meaningful writing and reporting, effective presentation skills, and ability to work productively in a group with co-operation.

Bachelor of Arts Economics (Sem. I)
Principles of Micro Economics-I
OVERVIEW OF OUTCOMES
CORE COURSE-MICROECONOMICS-1
Course Code: BECO-101
After the successful completion of the course, the students will be able to
Course Objective
101.1 Have insight about the economics, the economic problem and consumer behavior in terms of demand and its elasticity
101.2 Have further understanding of consumer behavior in terms of Laws of diminishing utility, equi-marginal utility, consumer equilibrium, Indifference Curve analysis, and consumer surplus
101.3 Have knowledge about nature of production, and producer behavior in terms of laws of production, economies and diseconomies of scale, and producer's equilibrium though isoquant approach.
101.4 Have understanding about Revenue, Cost concepts& inter-relationships about costs, and break-even analysis of profit maximizing behavior

Bachelor of Arts Economics (Sem. II)
Principles of Micro Economics-II
OVERVIEW OF OUTCOMES
CORE COURSE-MICROECONOMICS-II
Course Code: BECO-201
After the successful completion of the course, the students will be able to
Course Objective
201.1 Have understanding about the market, market structure, perfect competition and firm's equilibrium under it in short and long run
201.2 Have insight about monopoly, nature of monopoly, firm's equilibrium and price discrimination
201.3 Have knowledge about nature of imperfect markets viz monopolistic competition, Oligopoly, firms' strategies
201.4 Have understanding about the distribution and micro economic theories of distribution, traditional and modern approach, determination of interest rate and wages, different theories related to interest and wages

Bachelor of Arts Economics (Sem. III)
Principles of Macro Economics-I
OVERVIEW OF OUTCOMES
CORE COURSE-MACROECONOMICS-1
Course Code: BECO-301
After the successful completion of the course, the students will be able to
Course Objective
301.1 Have insight about macroeconomics, nature &scope, methodology; national income and circular flow of income in economy
301.2 Have understanding of macroeconomic behavior in terms of classical theory of employment, Say's law, Keynes' theory of equilibrium level of income and employment, a comparison

301.3 Have knowledge about consumption bevaiour at macroeconomic level, Keynes' psychological law of consumption, and hypotheses about long run income-consumption relationship
301.4 Have understanding about capital and investment, decision to invest at macroeconomic level, determinants of induced investment.

Bachelor of Arts Economics (Sem. IV)
Principles of Macro Economics-II
OVERVIEW OF OUTCOMES
CORE COURSE-MACROECONOMICS-2
Course Code: BECO-401
After the successful completion of the course, the students will be able to
Course Objective
401.1 Have understanding about income generation process through Investment, multiplier effect and acceleration effect of income, combined action of multiplier and acceleration effect
401.2 Have understanding of value of money; classical ,neoclassical approach, Demand for money and Supply of money, components of money supply, role of credit and high-powered money in economy
401.3 Have knowledge about fluctuations in value of money: inflation Causes, process of inflation, measures, Employment –inflation relationship: hypotheses .
401.4 Have understanding about business cycles, dynamics of business cycles phases, interest rate in macroeconomic perspective-Keynes and Hicks-Hansen approach.

Bachelor of Arts Economics (Sem. V)
Economics of Development-I
OVERVIEW OF OUTCOMES
CORE COURSE-ECONOMICS OF DEVELOPMENT-1
Course Code: BECO-501
After the successful completion of the course, the students will be able to
Course Objective
503.1 Have understanding about nature of economic growth and Economic development, underdevelopment, Factors of economic development
503.2 Have perception about nature and process of poverty, measurement physical quality of life, Human development Index, Population growth pattern of developing economies: Problems and policies;
503.3 Have knowledge about measurement of economic development, traditional measures of development, United Nations' development Programme (UNDP's) concepts and initiatives about development measures, Classical theory of development
503.4 Have understanding about steady-state growth and growth models-Harrod-Domar's, Schumpeter's and Robinson's.

Bachelor of Arts Economics (Sem. VI)
Economics of Development-II
OVERVIEW OF OUTCOMES
CORE COURSE-ECONOMICS OF DEVELOPMENT-2
Course Code: BECO-601

After the successful completion of the course, the students will be able to
Course Objective
603.1 Have understanding about structural changes in development process, relative importance of three sectors, dynamics of changes, infrastructure sector and development gap.
603.2 Have perception about nature and process of trade and its role in economic development, gains from trade; terms of trade, trade policies, protectionist measures as import substitution.
603.3 Have knowledge about environment-economy linkage, Management of common property resources, Sustainable development goals and strategies.
603.4 Have understanding about role of capital and technical progress, Investment in human capital and gains from women education.

B.Com. (Sem. I)
BC-102
MICRO ECONOMICS
Course Outcomes

 Know the scope and breadth of Micro Economics along with understanding the core principles of demand and supply so that they are able to apply the understanding of these concepts to comprehend real world problems along with the ability to think critically and analyze economic problems

 Understanding the core principles of production and costs so that they are able to apply the understanding of these concepts to comprehend real world problems along with the ability to think critically and analyze economic problems.

 Analyze given situations in a variety of markets on a microeconomic level. Understand the internal structure and assumptions of the different analytical frameworks of market conditions, their explanatory power and limitations.

 Exhibit theability to learn and apply relevant optimization techniques for analysis of microeconomic Behaviour of consumer, producer and firm. Simultaneously Understanding the implications and ethical as well as value part of it.

B.Com. (Sem. II)
BC-202
MACRO ECONOMICS
Course Outcomes

 The student shall understand the classical and Keynesian theory of output and employment broad and in-depth view of National Income concepts and measurement, and circular flow of Income

 Explaining the behavior of macroeconomicvariables by identifying and understanding the extended model.

 Understanding the IS-LM framework and its various aspects.

 To understand the theories of consumption and investment and their relevance.

B.Com. (Sem. III)
BC- 305

INDIAN FINANCIAL SYSTEM

Course Outcomes

 Understanding the meaning, types, supply, sources and history of money to comprehend the relevance and analyze the significance of money keeping in mind the ethical and research issues.

 Able to grasp various issues related to commercial banking simultaneously able to do critical appraisal of the progress of this sector and its contribution to growth.

 To know the about the policy, objectives and functioning of central bank RBI. Further able to analyze the normative and positive effects of the policy and interpret implications using the relevant tools.

 To comprehend the structure and segments of financial markets. To understand the current relevance of development banks. To synthesize this knowledge to understand the banking and financial sector.

M.Com. (Sem. I)

MC: 103

MANAGERIAL ECONOMICS

Course Outcomes

 Know the scope and breadth of Micro Economics along with understanding the core principles of demand and supply so that they are able to apply the understanding of these concepts to comprehend real world problems along with the ability to think critically and analyze economic problems.

 Understanding the core principles of production and costs so that they are able to apply the understanding of these concepts to comprehend real world problems along with the ability to think critically and analyze economic problems.

 Analyze given situations in a variety of markets on a microeconomic level. Understand the internal structure and assumptions of the different analytical frameworks of market conditions, their explanatory power and limitations

 Exhibit theability to learn and apply relevant optimization techniques for analysis of microeconomic Behaviour of consumer, producer and firm. Simultaneously Understanding the implications and ethical as well as value part of it.

****

DEPARTMENT OF POLITICAL SCIENCE

Program Outcomes

PO1: Understand the world, their country, their society as well as themselves and have awareness of ethical problems, social rights, values and responsibility to the self and to others.

PO2: Understand different disciplines from natural and social science to mathematics and art, and develop interdisciplinary approaches in thinking and practice.

PO3: Think critically, follow innovations and developments in every phase.

PO4: Communicate effectively by oral, written, graphical and technological means.

PO5: Develop knowledge of theories, concepts & research methods in humanities and social sciences.

PO6: Develop the ability to make logical inferences about social & political issues on the basis of comparative and historical knowledge.

Program Specific Outcomes

PS01: Political Science goes beyond the politics carried out in a national social system.

PS02: Political Science helps to understand the concept and origin of power and different types of power relationships.

PS03: The course is aimed at shaping the students perception and outlook on social, economic and political environment of India and beyond.

Course Outcomes

Three Year Plan – Divided in six semesters

Course Name – BA 1st Semester

POLS [101]: Constitution of India

Students will be shaped as citizens who are aware of the ideals and philosophies of the Indian constitution, constitutional rights and duties, governmental institutions, centre-state relations and electoral policies in India.

Course Name – 2nd Semester

POLS [103]: Indian Politics

Students will be made conscious of the social, cultural, economic & political environment that affects politics in India at the national as well as regional level. It helps to understand the students about politics in India.

Course Name – BA 3rd Semester

POLS [202]: Indian Political Thinkers

For a proper understanding of Indian political scene as we find it today, a thorough study of the prominent political thinkers is very essential. The introduction provides the readers a peep into the manner in which the Indian political ideas were adopted from time to time by the political leaders. It deals with the political, social and economic ideas of the socialist and communist leaders of India in an excellent manner.

Course Name – BA 4th Semester

POLS [203]: Western Political Thinkers

Having covered the early modern political thinking in the first part of Western political thought, it goes on give further understanding on the later part of modern times particularly the 20th century political thinking in variety of ways. Beginning with Hegel and enlightenment, the course explains how two major political ideologies – Liberalism and Marxism are juxtaposed and interjected during the rest of the period. Finally, it also explains, how these two thought frames have come to face challenges in the later part of 20th century and reoriented themselves which resulted in new frames of thing such as New Right or Neo Liberalism and on the other hand, Marxism gave way to New Left, Post structuralism or even Post Modernist ideas.

Course Name – BA 5th Semester

POLS [102]: International relations

Students will be familiarized with different theories on International politics and to make them aware of the different units and actors that operate in the international system which determine the domestic and foreign policies of a nation state. The students are also expected to be able to grasp the operation of various international organizations, and how the rational interests of nation states are attained and defended. Students are also expected to understand power politics and relations among state and also they come to know about parameters of national power.

Course Name – BA 6th Semester

POLS []: International Organizations

The expected outcome is to familiarize the students with the workings and functioning of the International Organizations, especially the United Nations and enable them to understand the different issues taken up by the UN.

****

DEPARTMENT OF PUBLIC ADMINISTRATION

Program Outcomes

PO1: To make the students of Public Administration aware not only about the subject as a field of study but also to make them informed about how the administrators across the world work and lead their respective counties work toward development and welfare of the people.

PO2: To enable them develop an academic acumen for a subject that has a very wide and never ending influence on minds and lives of masses.

PO3: To produce a young and talented breed of students who may in future take Public Administration as academic profession or as a practice as civil servants.

Program Specific Outcomes

PSO1: As a field of study, Public administration brings students closer to the political and administrative systems of their country.

PSO2: To emphasize upon both aspects of Public Administration—as a field of study and a field of practice.

Course Outcomes

Three Year Plan – Divided in Six Semesters

BA 1st Year

Course Name – 1st Semester

PA 101: Elements of Public Administration

Divided in Four Units, this Course aims to not only introduce the students of Public Administration to Public Administration as a discipline, and its evolution, but also to make them aware of the Principles, structure and significance of Organization, and the Emerging issues in the field of Public Administration as a discipline.

Course Name – 2nd Semester

PA 102: Basics of Public Administration

Again divided in Four Units, the Units emphasize upon making the students venture into Theories of Public Administration and develop a holistic outlook about the contributions of various thinkers in the development of Public Administration as a field of study.

BA 2ND Year

Course Name – BA 3rd Semester

PUBA 201: Public Financial Administration (w.e.f. the academic session 2019-20)

The course Public Financial Administration aims to acquaint the students of Public Administration on various aspects of financial administration, particularly budgeting and its processes, financial institutions and resource mobilization strategies with special reference to India. Besides, the students would be made aware of various mechanisms of financial control over government.

Course Name – BA 4th Semester

PUBA 202: Public Personnel Administration (w.e.f. the academic session 2019-20)

Personnel are a sovereign factor in public administration. To harness this factor the students of Public Administration are taught this course to develop among them an understanding about the various concepts of public personnel administration viz. recruitment, classification, promotion, career systems and various other processes and activities of personnel administration in India. The various issues in civil service such as ethics, code of conduct and disciplinary processes will also be taught to the students to generate a reasonable level of understanding about various facets of the human resource in the government.

BA 3RD YEAR

Course Name – 5th Semester

PUBA 301: Rural Local Governance (Option-II) (w.e.f. the academic session 2020-21)

Rural Local Governance has gained much currency post 73rd Constitutional Amendment Act 1992. This Course inspires students to acquire the theoretical knowledge and understanding of the evolution and growth of rural local governance with special reference to Panchayati Raj

Institutions in India. The Module is so designed to impart students with insights about composition, role and functions, resources of Panchayati Raj Institutions.

Course Name – BA 6th Semester

PUBA 302: Citizen Centric Governance (Option-II) (w.e.f. the academic session 2020-21) This Course has been designed by keeping into consideration the ethos of harmonious relationship between citizens and public administrators. This imparts knowledge about the evolution and growth of the idea and concept of citizen centric governance, good governance and the institutions, tools and mechanisms for ensuring citizen centric governance.

******

DEPARTMENT OF MUSIC

Programme Specific Outcomes: Music Vocal

The course describes about the historical study and detailed description of the ragas prescribed in the syllabus and to demonstrate various aspects of ragas and their differentiation. The programme also describes about various shailies i.e. tarana, chaturang, tirvat, geet, gazal & bhajan. It also describes about the compositional forms and notation systems of Hindustani Music. Programme specific outcome of bachelor degree with music vocal as an optional subject is to produce competent artists/musicians who can employ and implement their knowledge in premium processes.

Programme Outcomes of Three Years B.A. with Music Vocal as an optional subject

B.A. with Music Vocal (entire)

Three Year B.A. (with Music Vocal) programme is formulated for developing competent artists/musicians for which significant job opportunities exist in this country. The students will gain and apply knowledge of music concepts such as various aspects of ragas and their differentiation, various shailies i.e. tarana, chaturang, tirvat, geet, gazal & bhajan and various compositional forms and notation systems of Hindustani Music related to the field of music.

Programme Class Wise

B.A. (Music Vocal) I

The students are familiarised with basic aspects with subjects required to study music. This is the very fundamental required on which they build their knowledge of the subject.

B.A. (Music Vocal) II

During this year as the students slowly climb the ladder of their career in this field, they are introduced to more advanced knowledge of various courses of music.

B.A. (Music Vocal) III

Finally the students are made to learn and understand various aspects of music on which they will build the career like Post graduation.

Course Outcomes: Department of Music

Semester I

Paper-1 (MUSV 101): Theory

The students will gain knowledge and understanding of the basic terminologies of Indian music. The students will get familiarised with scope and importance of music and the terms associated with description and differentiation of Ragas, Notation of Drut Khayla in Raga Asawari, Bhupali, 10 Alankar in Sudh Swaras and Vikrit Swaras, National Anthem. They will also acquire knowledge about Shastriya Sangeet, Ardh Shastriya Sangeet, Sugam Sangeet and Lok Sangeet.

Paper-2 MUSV (P) 102: Practical

This is a practical paper where students will be required to demonstrate their skill in 10 Alankaras in Shudh Vikirt Swaras, Drut Khayal with alap and tanas in Bhupali & Asawari and one Sargam geet in any prescribed raga.

Semester -2

Paper-3 (MUSV 103): Theory

The students will be made to undertake historical study and description of ragas prescribed in the syllabus. The students will learn the notations of Vilambit Khyal, Drut Khyal, Dhrupad in Kafi ragas, Desh ragas and Yaman ragas. The students will also learn important definitions associated with music i.e. Alankar, Verna, Khyal, Tarana, Parmel Parveshak Raga, Major Tone, Minor Tone, Semi Tone and Sudh Raga etc. The students will also learn about the history of Indian Music from Vaidic period to 12^{th} Century.

Paper-4 MUSV (P) 104: Practical

This is a practical paper where students will be required to demonstrate their skill with one Drut Khyal with Alap & Tanas in Yaman, Kafi and Desh. The students will be required to compose one Geet or Bhajan and ability to play National Anthem on Harmonium.

Semester -3

Paper-A Theory (MUSV 201): Fundamental Study of Indian Music Vocal

The students will be made to undertake historical study and description of ragas prescribed in the syllabus. The students will learn the notations of Vilambit Khyal, Drut Khyal & Tarana in Patdeep Raga, Gaur Sarang, Jai-jaiwanti, Malkauns Raga. They will learn the shailies of Dhrupad, Dhamar, Khyal, Thumari & Tappa. They will also learn the role of film music in popularising classical music.

Paper -B Practical MUSV (202): Stage Performance & Viva

This is a practical paper where students will be required to demonstrate their skill in one Vilambit Khyal with alaps and tanas in any one raga as prescribed in the syllabus & also one drut khyal with alap, bola lap, tans and bol tans in all prescribed ragas. One drut khyal may be set to any tala other than teental.

Semester -4

Paper-A Theory (MUSV 203): Fundamental Study of Indian Music Vocal

The students will be made to undertake historical study and description of ragas prescribed in the syllabus. The students will learn the notations of Vilambit Khyal, Drut Khyal & Dhrupad or Dhamar in Bhairav Raga, Bhairavi Raga, Khamaj Raga & Kedar. They will learn the shailies of Tarana, Chaturang, Tirvat, Geet, Gazal & Bhajan. They will also learn the placement of swaras on shruties by Pundrik Vitthal and Ramamatya and the contribution made towards music by Pt. Bhimsen Joshi, Pt. Jasraj and Smt. Girija Devi.

Paper -B Practical (MUSV (204): Stage Performance & Viva

This is a practical paper where students will be required to demonstrate their skill in one drut khyal with alap, bola lap, tans and not tans in all prescribed ragas. Out of four drut khyals one may be set to any tala other than teental. The students will have the ability to demonstrate Tilwara and Tivra talas with reciting bols by hand in thah and dugun layakaries and ability to play Ektal on Tabla.

Semester - V

Paper- I: Theory

The students will be made to undertake historical study and description of ragas prescribed in the syllabus. The students will learn the notations of Vilambit Khyal & Drut Khyal in Todi Raga, Puria Dhanashree, Basant, Kamod & Bhimpalasi. They will acquaint themselves with the origin and development of notation system, its merits & demerits. They will also do the critical analysis of the time theory of ragas.

Semester - VI

Paper- I: Theory

The students will be made to undertake historical study and description of ragas prescribed in the syllabus. The students will learn the notations of Vilambit Khyal & Drut Khyal in Miyan Ki Malhar, Bihag, Deshkar, and Babar. The students will be made to carry out the historical survey

of Indian Music from 17th to 19th Century. They will also have the elementary knowledge of folk music of Haryana and Punjab & classification of instruments during vedic period, medieval period and modern period.

Semester - VI

Paper- 2: Practical

This is a practical paper where students will be required to demonstrate their skill in two slow khayalas with extemporealaps and tanas in each of the ragas as prescribed in the syllabus. One drut khyal with alap, bola lap, tans and bol tans in all prescribed ragas. Out of the five khayals one drut khyal may be set to any tala other than teental and one tarana in any of the prescribed ragas.

****

Department of Mass Communication

Programme: BAMC

Programme Outcomes: Bachelor of Arts in Mass Communication offers theoretical as well as practical knowledge about different subject areas which include Media and Mass Communication.

Programme Specific Outcomes: The course is designed to strengthen the ability of the students to explore different areas of Media and Mass Communication. After the completion of this course, students have the option to go for Higher Studies. They can also work in the field of Media and Journalism.

Course Outcome:

Semester-I

Sr. No.	Course Code	Nomenclature
1	**BAMC-101**	Introduction to Communication
2	**BAMC-102**	Basic of Journalism
3	**BAMC-103**	Computer Application
4	**BAMC-104**	Language in Media- 1 (Hindi)
5	**BAMC-105**	Communications Skills

Semester-II

Sr. No.	Course Code	Nomenclature
1	**BAMC-106**	Sociology and Communication
2	**BAMC- 107**	Mass Communication: An Introduction
3	**BAMC-108**	News Reporting
4	**BAMC-109**	Language in Media-2 (English)
5	**BAMC-110**	Personality Development Skills

Semester-III

Sr. No.	Course Code	Nomenclature
1	**BAMC-111**	Political Communication
2	**BAMC-112**	History of Print Journalism
3	**BAMC-113**	Media Laws & Ethics
4	**BAMC-114**	Media Writing-1
5	**BAMC-115**	Media Writing skills

Semester-IV

Sr. No.	Course Code	Nomenclature
1	**BAMC-116**	Media Management
2	**BAMC-117**	Cinema Studies in India
3	**BAMC-118**	Radio Broadcasting
4	**BAMC-119**	Editing for print & Electronic Media
5	**BAMC-120**	Current Awareness

Semester-V

Sr. No.	Course Code	Nomenclature
1	**BAMC-121**	Media & Politics
2	**BAMC-122**	Development Communication
3	**BAMC-123**	Television Broadcasting
4	**BAMC-124**	Multimedia Production
5	**BAMC-125**	Writing for Visuals

Semester-VI

Sr. No.	Course Code	Nomenclature
1	**BAMC-126**	Introduction to Online Journalism
2	**BAMC-127**	New Media
3	**BAMC-128**	Advertising & Public Relations
4	**BAMC-129**	Marketing Communication
5	**BAMC-130**	Writing for New Media

Program Name: BBA

Program Outcomes

Under graduation, students will be able to get:

- An Understanding of Global Perspectives and broad business concept and functions.
- Developing Thinking Abilities (Critically and Analytically).
- Interpersonal and Intrapersonal Skill Development.
- Understanding CSR and Creating Social Sensitivity.
- Ethical and Sustainable Growth of business.
- Several Business Practices elaborates and demonstrate sensitivity to ethical, social and sustainability issues.
- Creating Entrepreneurship skills.

- Demonstrating the use of business technologies for solving problems.
- Individual and team work.
- Managing Project and finances.

Program Specific Outcomes

BBA programme has been designed to prepare graduates for attaining the following specific outcomes:

- Clarifying the concepts of business and its implementation.
- Understanding the various functional areas in business.
- Creating ability to evolve practices that helps in organizational benefits.
- Understanding the financial issues and sustainability of business.
- Analysis and interpretation of raw data that helps in decision making.
- Enhancing the communication skills, verbal and non-verbal.
- Improving critical thinking and leadership qualities.
- Creating ability to work in a team.
- Improving the way of social communication and understanding of social cues.
- Creating abilities to imbibe values for better corporate governance.
- Understanding the challenges and ethical practices of business.
- Generating business ability to create business plan.

Course Outcomes:

Sr. No.	Semester	Course Name	Learning Outcome
1	**I**	**Business Organization**	Show proficiency in basic concepts, conventions and understanding of the business process. Understand the forms of business organization and Understanding the ethics in business.
2	**I**	**Business Mathematics**	Aims at equipping the students with abroad –based knowledge of mathematics with emphasis on business application
3	**I**	**Financial Accounting**	Basic understanding of accounting principles & techniques in preparing the final accounts of business firms and companies for the users of accounting information.
4	**I**	**Computer Fundamentals**	Understanding various computer fundamentals after undergoing this curriculum and understand the power of the software tools and applications in business.

5	**I**	**Business Communication**	Enhancing the skills via written as well as oral communication through practical conduct of this course and also to make them understand the principles and techniques of business communication.
6	**I**	**Micro-Economics for business Decision**	Analyze economic problems, correlate scarcity with the requirements, evaluating demand, analyzing cost in order to optimize cost-production combination.
7	**I**	**Seminar**	Focused to acquaint the students with the tools and techniques of Business management.
8	**II**	**Principles of Management**	Roles and responsibilities associated with managerial functions, identifying the key contributors and their contributions in the development of management thought and comparing various approaches in management for problem solving.
9	**II**	**Macro – Economic Analysis and Policy**	Knowledge of how the National Income is calculated in India and how Indian Economy operates at Macro level.
10	**II**	**Company Accounts**	Understanding the share capital transaction, issuing of debentures and preparing final accounts.
11	**II**		
12	**II**	**Computer application in Managemnt**	To familiarize them with the computer and its applications in the relevant fields and also to make them aware of other related papers of IT.
13	**II**	**Organisational Behaviour**	Understanding basic concepts, theories and techniques in the human behavior at the individual, group and organizational levels.
14	**II**	**Business Statistics**	In-depth knowledge of statistical tools to enable and make statistical analysis in business/industry, which are highly important for further studies in management.

15	**II**	**Viva-Voce**	Develop a thorough understanding of the chosen subject area and demonstrate the ability to collate and critically assess/interpret data.
16	**III**	**Cost Accounting**	An insight into the various aspects of Cost accounting such as concept, material control, labor cost control and methods of costing
17	**III**	**Marketing Management**	Evaluate the significance of marketing, analyze the relationships between marketing management and the political, economic, legal and social policies and its impact on business, Identify the role and significance of various elements of marketing mix, evaluate the role and relevance of marketing organization in current marketing conditions.
18	**III**	**Capital Market**	Explaining the role of capital market in Indian Financial System and its regulatory environment.
19	**III**	**Production Management**	Designed for students who are not having any direct experience with industry and production processes and demonstrating a virtual experience of the production processes
20	**III**	**DBMS**	Defining database system architecture, security of database and data mining and warehousing.
21	**III**	**Indian Business Environment**	Identifying nature, components and determinants of business environment and understanding the development of banking facilities.
22	**IV**	**Financial Management**	Explaining accounting statements and analyze the financial statement with the help of ratio analysis, applying the concept of time value of money for any investment decision, assessing the capital structure of a firm and state its impact on firm's profitability.
23	**IV**	**Human Resource Management**	Understanding of theoretical concepts and framework required for effective Human Resource Management, developing an overview on various functions and processes of human

			resource management and identifying the human resource needs of an organization and plan accordingly.
24	**IV**	**Business Research Methodology**	Describing the research process and list the characteristics of various types of research , formulating Research Problem, Research Objectives and Hypothesis from a given research problem and various research designs and methods of data collection.
25	**IV**	**Business Law**	Become aware of Law in general, legal aspects of business, familiar with the laws governing commercial deals and Create commercial contracts.
26	**IV**	**Introduction to Information Technology**	Understanding word processor, electronic spreadsheet, and briefing about the internet.
27	**IV**	**Presentation Skills and Viva-Voce**	Develop an ability to effectively communicate knowledge in a scientific manner.
28	**V**	**Purchase and material Management**	Inform about purchasing, material management, material quality and stores management.
29	**V**	**Company Law**	Become aware of legal aspects of Company law, understand company contracts and become confident therein, deal with corporate contracts confidently and become more confident in executing commercial contracts
30	**V**	**Management accounting**	Analyzing implications of cost in managerial decisions, preparing different budgets, Understand Standard costing and analysis of deviation, understand Break Even concept and methods and techniques cost management
31	**V**	**Computer Network and Internet**	Basics of OSI model, TCP model, Overview of internet and intranet concepts and understanding the protocols f communication.
32	**V**	**Environmental Studies**	Understanding the nature and scope of environment, concept of ecosystem, and environmental pollution, understanding social issues and environmental legislation.

33	**VI**	**Summer Training Report**	Bridging the knowledge and skills acquired at the workplace and generating a report on understanding.
34	**VI**	**Corporate Taxation**	Basics concepts of tax, income from salary, income from capital gain and gross total incomes.
35	**VI**	**Entrepreneurship development**	Understand the entrepreneurial cultural and industrial growth so as to prepare them to set up and manage their own small units.
36	**VI**	**Foundations of international business**	Understanding the global dimensions of management, foreign market entry modes and accounting differences across cultures.
37	**VI**	**Principles of banking**	Demonstrate banking law and its relationship to banks and customers. Engage in critical analysis of the practice of banking law from a range of perspectives.
38	**VI**	**E-Commerce**	Examining the features , functions and common practices of e-Commerce, advantages and disadvantages of various e-Commerce models along with the infrastructure requirements and identifying areas of application along with contemporary issues arising in the field
39	**VI**	**Personality and Soft Skill Development**	Concept of personality, its determinants, syndrome, development of personality and interpersonal and group skills.
40	**VI**	**Comprehensive Viva-Voce**	Understanding of the chosen subject area and ability to collate and critically assess/interpret data

****

DEPARTMENT OF

BBA (BACHELOR OF BUSSINESS ADMINISTRATION)

Program Name: BBA (Bachelor of Bussiness Administration)

Three Years Degree Programme Outcomes

Under graduation, students will be able to get:

- An Understanding of Global Perspectives and broad business concept and functions.
- Developing Thinking Abilities (Critically and Analytically).
- Interpersonal and Intrapersonal Skill Development.
- Understanding CSR and Creating Social Sensitivity.
- Ethical and Sustainable Growth of business.
- Several Business Practices elaborates and demonstrate sensitivity to ethical, social and sustainability issues.
- Creating Entrepreneurship skills.
- Demonstrating the use of business technologies for solving problems.
- Individual and team work.
- Managing Project and finances.

Program Specific Outcomes

BBA programme has been designed to prepare graduates for attaining the following specific outcomes:

- Clarifying the concepts of business and its implementation.
- Understanding the various functional areas in business.
- Creating ability to evolve practices that helps in organizational benefits.
- Understanding the financial issues and sustainability of business.
- Analysis and interpretation of raw data that helps in decision making.
- Enhancing the communication skills, verbal and non-verbal.
- Improving critical thinking and leadership qualities.
- Creating ability to work in a team.
- Improving the way of social communication and understanding of social cues.
- Creating abilities to imbibe values for better corporate governance.
- Understanding the challenges and ethical practices of business.
- Generating business ability to create business plan.

Course Outcomes:

Sr. No.	Semester	Course Name	Learning Outcome
1	**I**	**Business Organization**	Show proficiency in basic concepts, conventions and understanding of the business process. Understand the forms of business organization and Understanding the ethics in business.
2	**I**	**Business Mathematics**	Aims at equipping the students with abroad –based knowledge of mathematics with emphasis on business application
3	**I**	**Financial Accounting**	Basic understanding of accounting principles & techniques in preparing the final accounts of business firms and companies for the users of accounting information.
4	**I**	**Computer Fundamentals**	Understanding various computer fundamentals after undergoing this curriculum and understand the power of the software tools and applications in business.
5	**I**	**Business Communication**	Enhancing the skills via written as well as oral communication through practical conduct of this course and also to make them understand the principles and techniques of business communication.
6	**I**	**Micro-Economics for business Decision**	Analyze economic problems, correlate scarcity with the requirements, evaluating demand, analyzing cost in order to optimize cost-production combination.
7	**I**	**Seminar**	Focused to acquaint the students with the tools and techniques of Business management.
8	**II**	**Principles of Management**	Roles and responsibilities associated with managerial functions, identifying the key contributors and their contributions in the development of management thought and comparing various approaches in management for

			problem solving.
9	**II**	**Macro – Economic Analysis and Policy**	Knowledge of how the National Income is calculated in India and how Indian Economy operates at Macro level.
10	**II**	**Company Accounts**	Understanding the share capital transaction, issuing of debentures and preparing final accounts.
11	**II**		
12	**II**	**Computer application in Managemnt**	To familiarize them with the computer and its applications in the relevant fields and also to make them aware of other related papers of IT.
13	**II**	**Organisational Behaviour**	Understanding basic concepts, theories and techniques in the human behavior at the individual, group and organizational levels.
14	**II**	**Business Statistics**	In-depth knowledge of statistical tools to enable and make statistical analysis in business/industry, which are highly important for further studies in management.
15	**II**	**Viva-Voce**	Develop a thorough understanding of the chosen subject area and demonstrate the ability to collate and critically assess/interpret data.
16	**III**	**Cost Accounting**	An insight into the various aspects of Cost accounting such as concept, material control, labor cost control and methods of costing
17	**III**	**Marketing Management**	Evaluate the significance of marketing, analyze the relationships between marketing management and the political, economic, legal and social policies and its impact on business, Identify the role and significance of various elements of marketing mix, evaluate the role and relevance of marketing organization in current marketing conditions.
18	**III**	**Capital Market**	Explaining the role of capital market in Indian Financial System and its regulatory environment.
19	**III**	**Production**	Designed for students who are not

		Management	having any direct experience with industry and production processes and demonstrating a virtual experience of the production processes
20	**III**	**DBMS**	Defining database system architecture, security of database and data mining and warehousing.
21	**III**	**Indian Business Environment**	Identifying nature, components and determinants of business environment and understanding the development of banking facilities.
22	**IV**	**Financial Management**	Explaining accounting statements and analyze the financial statement with the help of ratio analysis, applying the concept of time value of money for any investment decision, assessing the capital structure of a firm and state its impact on firm's profitability.
23	**IV**	**Human Resource Management**	Understanding of theoretical concepts and framework required for effective Human Resource Management, developing an overview on various functions and processes of human resource management and identifying the human resource needs of an organization and plan accordingly.
24	**IV**	**Business Research Methodology**	Describing the research process and list the characteristics of various types of research , formulating Research Problem, Research Objectives and Hypothesis from a given research problem and various research designs and methods of data collection.
25	**IV**	**Business Law**	Become aware of Law in general, legal aspects of business, familiar with the laws governing commercial deals and Create commercial contracts.
26	**IV**	**Introduction to Information Technology**	Understanding word processor, electronic spreadsheet, and briefing about the internet.
27	**IV**	**Presentation Skills and Viva-Voce**	Develop an ability to effectively communicate knowledge in a scientific manner.
28	**V**	**Purchase and material Management**	Inform about purchasing, material management, material quality and stores management.

29	**V**	**Company Law**	Become aware of legal aspects of Company law, understand company contracts and become confident therein, deal with corporate contracts confidently and become more confident in executing commercial contracts
30	**V**	**Management accounting**	Analyzing implications of cost in managerial decisions, preparing different budgets, Understand Standard costing and analysis of deviation, understand Break Even concept and methods and techniques cost management
31	**V**	**Computer Network and Internet**	Basics of OSI model, TCP model, Overview of internet and intranet concepts and understanding the protocols f communication.
32	**V**	**Environmental Studies**	Understanding the nature and scope of environment, concept of ecosystem, and environmental pollution, understanding social issues and environmental legislation.
33	**VI**	**Summer Training Report**	Bridging the knowledge and skills acquired at the workplace and generating a report on understanding.
34	**VI**	**Corporate Taxation**	Basics concepts of tax, income from salary, income from capital gain and gross total incomes.
35	**VI**	**Entrepreneurship development**	Understand the entrepreneurial cultural and industrial growth so as to prepare them to set up and manage their own small units.
36	**VI**	**Foundations of international business**	Understanding the global dimensions of management, foreign market entry modes and accounting differences across cultures.
37	**VI**	**Principles of banking**	Demonstrate banking law and its relationship to banks and customers. Engage in critical analysis of the practice of banking law from a range of perspectives.
38	**VI**	**E-Commerce**	Examining the features , functions and common practices of e-Commerce, advantages and disadvantages of various e-Commerce models along

			with the infrastructure requirements and identifying areas of application along with contemporary issues arising in the field
39	**VI**	**Personality and Soft Skill Development**	Concept of personality, its determinants, syndrome, development of personality and interpersonal and group skills.
40	**VI**	**Comprehensive Viva-Voce**	Understanding of the chosen subject area and ability to collate and critically assess/interpret data

****

DEPARTMENT OF COMMERCE

PROGRAMME OUTCOMES, PROGRAM SPECIFIC OUTCOMES, COURSE OUTCOMES

Programme: B.Com.

Programme Outcomes:

- After completing Bachelor's in Commerce (B.Com.)program, students would gain a thorough understanding in the fundamentals of Commerce and Finance.
- Capability of the students to make decisions at personal and professional level will increase after completion of this course.
- The knowledge of different specializations in accounting, costing, banking and finance with the practical exposure helps the students to stand in organization.
- This program could provide Industries, Banking sectors, Insurance companies, Financing companies, Transport agencies, Warehousing etc., well trained professionals to meet the requirements.

Program Specific Outcome:

- Students will learn relevant financial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.
- Learners will be able to recognize features and roles of businessmen, entrepreneur, managers, consultant, which will help learners to possess knowledge and other soft skills and react aptly when confronted with critical decision making.
- Learners will acquire the skills like effective communication, decision making, problem solving in day to day business affairs.
- Learners can also acquire practical skills to work as tax consultant, audit assistant and other financial supporting services.
- Learners will be able to do higher education and advance research in the field of commerce and finance.

COURSE OUTCOMES OF COMMERCE

B.COM

Core Course Code: BC-101

Core Course Title: Financial Accounting

Course Outcomes:

- This course imparts conceptual knowledge and understanding of the financial accounting system. Accounting graduates will be professionally competent in preparing the financial statements in accordance with the accounting standards, concepts and rules and interpreting the business implications of these financial statements.
- Students will become capable to do planning related to finance and develop professional values like integrity, service to the community and to the accounting profession.

Core Course Code: BC-103

Core Course Title: Business Management

Course Outcomes:

- Students of management will be capable of integrating the knowledge of various business functions and apply that in the dynamic business environment. They will learn to lead and influence others.
- Students will be capable of becoming effective team leader as well as team member who can effectively communicate and cooperate with all the other members. They will develop knowledge of generating innovative ideas and put them into practice so as to compete and achieve success in business.

Core Course Code: BC-105

Core Course Title: Business Mathematics

Course Outcomes:

- Students will be able to apply basic terms of integration in solving practical problems field of as of business.
- They will be able to discuss effects of various types and methods of interest account.

- Students will be developed with the ability to solve problems in the areas of business calculus, simple and compound interest account, use of compound interest account, loan and consumer credit.
- They will be able to connect acquired knowledge and skills with practical problems in economic practice.

Core Course Code: BC-106

Core Course Title: Business Communication

Course Outcomes:

- Students will be able to understand and apply the knowledge of Human communication and language processes which will enable them to think, observe and express effectively.
- They will be capable of communicating effectively orally and in writing.
- Students will be developed of knowledge, skills and judgement around Human communication that facilitate their ability to work collaboratively with others. This course helps students to develop their overall personality.

Core Course Code: BC-203

Core Course Title: Fundamental of marketing

Course Outcomes:

- Student understands the core concepts of marketing and the role of marketing in business and society and the knowledge about social, legal, ethical and technological forces on marketing decision making.
- They also understand how to develop marketing strategies based on product, price, place and promotion objectives.
- They understand the concepts of buyer behaviour and market segmentation and how to develop an integrated advertising and Marketing communications plan and persuasively present and defend it.
- They learn how to evaluate the effectiveness of integrated advertising and marketing communications initiatives and how to develop creative solutions to address advertising and marketing communications challenges.

Core Course Code: BC-204

Core Course Title: E- Commerce

Course Outcomes:

- On successful completion of this module students should be able to understand concepts of E-Commerce and analyze different types of portal technologies and deployment methodologies commonly used in the industry.
- Analyze the effectiveness of network computing and cloud computing policies in a multi-location organization.
- Analyze real business cases regarding their e-business strategies and transformation processes and choices.
- Integrate theoretical frameworks with business strategies.

Core Course Code: BC-206

Core Course Title: Business Environment of Haryana

Course Outcomes:

- This course is designed to impart knowledge about economy of Haryana. Students will be able to critically analyse and understand the economic development and agricultural development in Haryana.
- They will be able to know how MSMEs operate in the state.
- They will be capable of understanding the Budgeting process of Haryana, Revenue Sources of Government and its utilisation.

Core Course Code: BC-301

Core Course Title: Corporate accounting

Course Outcomes:

- Corporate Accounting in conformity with the provisions of Companies Act and Accounting as per Indian Accounting Standards.
- The conceptual aspect of corporate accounting and various skills about Computerized Accounting and Accounting Standards.
- Various concepts related to companies i.e, liquidation, amalgamation, absorption, Re-construction and holding company.

Core Course Code: BC-302

Core Course Title: Business statistics

Course Outcomes:

- Upon completion of the course, the student will Be able to Identify statistical results and terminology in politics, popular culture, and scientific studies and state their relevance.
- Generate appropriate graphical and numerical summaries for various situations. Describe and identify the role and importance of variability and randomness in statistics.
- Use statistical software to analyze data, carry out inference and make conclusions. To be able to perform statistical analyses of samples, compute the measures of locations and dispersion, and interpret these measures for descriptive statistics, to apply discrete and continuous distributions of probability.
- Upon completion of the course, the student will be able to understand linear regression, multiple regression, correlation analysis, model building and diagnosis, and time series regression using various models.

Core Course Code: BC-303

Core Course Title: Business law

Course Outcomes:

- The basic concepts, terms & provisions of Mercantile and Business Laws. How these laws affect on business, trade and commerce.
- To provide an overview of important laws that have a bearing on the conduct of business in India.
- To examine the various legal forms that a business entity can take and the relative advantages and disadvantages of each of these forms. To understand various modes of dispute resolution in business transactions

Core Course Code: BC-304

Core Course Title: Company law

Course Outcomes:

- This course provides students with an integrated understanding of the body of legal rules that regulate companies in India.
- Topics covered include the management and control of companies, The process by which companies transact; and the process by which companies are both initiated and brought to an end.
- Detailed consideration is also given to the notion of corporate personality; the means by which companies can be financed, and the rights of creditors, shareholders and other stakeholders.

Core Course Code: BC-305

Core Course Title: Indian financial system

Course Outcomes:

- To introduce students to the world of financial services. To enrich student's understanding of the fundamental concepts and working of financial institutions.
- To equip students with the knowledge and skills necessary to become employable in the financial service industry.

Core Course Code: BC-306(ii)

Core Course Title: Foreign trade of india

Course Outcomes:

- The process of integration of the Indian Economy with other economics of the world.
- The emerging issues in policies of India's foreign trade, The present status of the Indian Economy. A new approach to the study of the Indian and GlobalEconomy.

Core Course Code: BC-405

Core Course Title: Computerised accounting system

Course Outcomes:

- Prepare a set of basic financial statements, Calculate and analyze common ratios and numerical relationships that are produced through the accounting cycle.

- Demonstrate proficiency in processing the accounting cycle for a business using popular accounting software.
- Demonstrate proficiency in communicating financial information in the subject area. Present an oral presentation in the designated subject area.

Core Course Code: BC-406(i)

Core Course Title: Advertising

Course Outcomes:

- The successful completion of the course shall enable the student, To know the basics of marketing communication and the processes.
- To develop an understanding of strategic and tactical level decisions involved in development of an advertisement and their application.
- To know about possible arrangements for organizing and evaluating advertising efforts. To comprehend the ethical issues and social aspects of advertising.
- To understand the process involved in personnel selling, its management and its implications for relationship development.

Core Course Code: BC-501

Core Course Title: Cost Accounting

Course Outcomes:

- This course intends to develop the knowledge about the various techniques, tools and methods used in cost accounting.
- This will lead the students to have the knowledge about How to reduce the cost, control the cost in the production process.
- Students will be able to analyse ad provide recommendations to improve the operations of organisation and maximise the profitability through application of various cost accounting techniques.

Core Course Code: BC-502

Core Course Title: Financial Management

Course Outcomes

- This course helps students to acquire and develop skills to take rational decisions in the process of financing mix, Budgeting and Dividend distribution.
- Students will be developed with the ability to use the financial resources efficiently in the business organisations as well as in their personal life.
- They will be able to analyse the complexities associated with management of cost of funds in Capital structure.

Core Course Code: BC-503

Core Course Title: Good and Services Tax (GST)

Course Outcomes:

- This course has been designed to enable the students to learn the concepts of Indirect taxes and GST from the Pre GST period to Post GST period.
- This will make the students understand the implications of GST on the taxable capacity of consumers, dealers and on the society at large and its changes.
- Students will understand the importance of GST in the Indian and global economy and its contribution to the economic development.

Core Course Code: BC-504

Core Course Title: Income Tax

Course Outcomes:

- This course has been designed to acquaint the students with basic principles underlying the relevant provisions of Income Tax Law in force for the relevant previous year and to provide an insight into the procedural aspects for assessment of tax liability for an individual assesee.

- Students of this course will be able to explain different types of incomes and their taxability & expenses and their deductibility.

Core Course Code: BC-505

Core Course Title: Auditing

Course Outcomes:

- Students will gain knowledge about principles and practices used by internal and public auditors in examining the financial statements.
- Students will have knowledge of techniques available for studying the data presented in financial statements and procedures used in verifying the fairness of the information.

Core Course Code: BC-506

Core Course Title: Fundamentals of Stock Markets

Course Outcomes:

- This course intends to impart knowledge about security markets and various financial instruments.
- Students will be able to know what are the guidelines for trading in securities, what kind of mechanism is followed. They will be capable of understanding How securities are traded on stock exchanges.
- Students will analyse the process of raising funds from international markets.

Core Course Code: BC-601

Core Course Title: Management Accounting

Course Outcomes:

- To acquaint students with applied aspects of accounting and making them familiar with using the techniques of using accounting information for decision making.
- They will be developed with the ability to collect, analyse and communicate quantitative as well as qualitative information to assist the management in making more effective planning and control decisions through various management accounting tools and techniques.

Core Course Code: BC-602

Core Course Title: Fundamentals of Insurance

Course outcomes:

- This course intends to make the students to identify what insurance is, how insurance works and how to determine insurance needs.
- Students will be able to explain insurance opertions and use of insurance as a tool to avoid losses and reduce risk.
- Students will be developed with the ability to compare various kinds of insurance plans as well as selection criteria from a cost-benefit point of view.

Core Course Code: BC-603

Core Course Title: Human Resource Management

Course outcomes:

- Students will be able to develop the understanding of concept of HRM and to understand the relevance in organizations.
- They will be capable of developing necessary skills set for application of various HR issues.
- They will be able to analyse the strategic issues and strategies required to select and develop manpower resources. To integrate the knowledge of HR concepts to take correct business decision

Core Course Code: BC-605

Core Course Title: Business Environment

Course Outcomes:

- Students will be able to explain the concept of various constituents of environment and their impact on business.
- They will be able to analyse the economic system and economic planning process in India.

- They will be developed with an understanding of impact of globalization of Indian Business and how the foreign exchange markets are operated.

Core Course Code: BC-606

Core Course Title: Corporate Governance

Course Outcomes:

- Learners will be able to explain the relationship between ethics, morals and values in the workplace students will be able to analyse Corporate Social Responsibility and various ethical codes in Corporate Governance.
- They will have an understanding of the organisational structure and various SEBI norms. They will be capable of understanding the employee conditions and Business ethics.

PROGRAMME OUTCOMES, PROGRAM SPECIFIC OUTCOMES, COURSE OUTCOMES:

Programme: M.Com.

Programme Outcomes:

- After completing Master's in Commerce (M.Com.)program, students would gain a thorough understanding in the fundamentals of Commerce and Finance.
- Capability of the students to make decisions at personal and professional level will increase after completion of this course.
- The knowledge of different specializations in accounting, costing, banking and finance with the practical exposure helps the students to stand in organization.
- This program could provide Industries, Banking sectors, Insurance companies, Financing companies, Transport agencies, Warehousing etc., well trained professionals to meet the requirements.
- This program will ensure them to work as investment consultants after a brief internship in suitable organizations absorbed in banking and insurance sector as executives.

Program Specific Outcome:

- Students will learn relevant financial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.
- Learners will be able to recognize features and roles of businessmen, entrepreneur, managers, consultant, which will help learners to possess knowledge and other soft skills and react aptly when confronted with critical decision making.
- Learners will acquire the skills like effective communication, decision making, problem solving in day to day business affairs.
- Learners can also acquire practical skills to work as tax consultant, audit assistant and other financial supporting services.
- Learners will be able to do higher education and advance research in the field of commerce and finance
- To create awareness in application oriented research through research for business decisions.
- Will Foster the entrepreneurial skills for start up developments.
- For teaching in Schools and Colleges after qualifying requisite tests.

M.COM

SEMESTER-I

Core Course Code: MC-101

Core Course Title: Management Process and Organization Behaviour

Course Outcomes:

- This course will help the students indeveloping an understanding of the aspects that can motivate employees, increase their performance, and help organizations establish a strong and trusting relationship with their employees.

- The study of organizational behaviour gives insight on how employees behave and perform in the workplace, what makes people make decisions, why employees are not motivated to do what you want them to do and why people are productive or not productive.

- Making good decisions and creating an environment where people can be creative and motivated, are very important for a successful business.

Core Course Code: MC-102

Core Course Title: Business Environment

Course Outcomes: This course will make the students aware about the business environmental factors such as

- changes in input supplies,
- changes in social factors like consumer behaviour,
- state of competition in industry etc. and the Macro factors,
- how crucial they are to be considered for ensuring the smooth functioning of their business cycles.

Core Course Code: MC-103

Core Course Title: Managerial Economics

Course Outcomes: This course will direct the students about how to chalk out business policies,

- how to control costs,
- to know about the usefulness of Demand in casting,
- to succeed with a good Business Plan,
- understanding the mechanism of Economic system etc.

Core Course Code: MC-104

Core Course Title: Financial Accounting and Reporting

Course Outcomes: When studying accounting students will acquire knowledge about the laws that

- govern business,
- typical business administration schemes,
- the ethics of accountancy,
- statistics, and accounting theory,
- they ‘ll get to know about the preparation of the key documents like financial statements and tax returns.

Core Course Code: MC-105

Core Course Title: Business Statistics

Course Outcomes:

- Statistics is the science of learning from data.
- Statistical knowledge will help them in knowing about the proper methods to collect the data, employ the correct analyses, and effectively present the results.
- Statistics is a crucial process behind how we make discoveries in science, make decisions based on data, and make predictions.

Core Course Code: MC-106

Core Course Title: Computer Applications in Business and Cyber Security

Course Outcomes:

- This course will let the students know about the functions of business computer like the digital operations for Communications, Research, Media Production, Data tracking and Storage, Product development and Human Resources etc.

SEMESTER-II

Core Course Code: MC-201

Core Course Title: International Business

Course Outcomes:

- In a nutshell, students need to develop a global perspective in order to be successful in business.
- Studying international business allows them to see how globalization has brought about an increasing 'connectedness' of businesses, markets, people and information across countries.

Core Course Code: MC-202

Core Course Title: Financial Management

Course Outcomes:

- This Course will provide the insight to the studentsabout Introduction to financial management, its nature, scope, and significance of financial management along with financial decisions and planning.

Core Course Code: MC-203

Core Course Title: Marketing Management

Course Outcomes:

- Under Marketing Management, Students will be studying about advertising, promotions, public relations, and sales.
- The procedure of introducing and promoting the product or service into the market and enhancing sales from the buying public.

Core Course Code: MC-204

Core Course Title: Human Resource Management

Course Outcomes:

- The importance of studying human resources management is that it will teach them on how to achieve business success through managing a team.
- Managing human resources is about being successful because the company has used their talent to their best ability. How to get the most out of people, it helps to **understand how to motivate people, train them and discipline them.**
- Whether you're aspiring to greater roles in a company or you simply want to be more effective in your existing job, studying human resources management can be **the gateway to getting more out of everyone around you.**

Core Course Code: MC-205

Core Course Title: Management and Cost Accounting

- **Course Outcomes:**This Course will make the students learn about the different coherent steps of managing the business practices like Record keeping, Planning and control, collecting cash, controlling stocks, Decision making using cost information for pricing, capital investment and marketing, evaluating market and product profitability.

Core Course Code: MC-206

Core Course Title: Research Methodology

Course Outcomes: This course will enlighten the students about how to discover new facts, how to verify and test important facts, analyzing an event or process or phenomenon to identify the cause and effect relationship, developing new scientific tools, concepts and theories to solve and understand scientific and non scientific problems, finding solutions to scientific, non scientific and social problems and, how to overcome or solve the problems occurring in our everyday life.

SEMESTER-III

Core Course Code : OE-304

Core Course Title : Applications of Marketing

Course Outcomes:

- This Course equips students to act as well rounded, critical thinkers. Not only it will present them the impeccable skills in data interpretation, but it also offers the higher level thinking that turns analytics into strategy.
- Through this, the students will get to know about the value of the products, their usage and additional info that might be helpful to the customers.

Core Course Code : MC-301

Core Course Title : E-Commerce

Course Outcomes:

- This course work has been designed to inculcate among students the fundamentals and technicalities of doing commerce transactions online.
- They will get to know how the application of e- Commerce through development of website enhances the potential global market and sales revenue, product, potential new customers, services and geographical areas.
- In term of non-financial benefits, e –commerce has significantly helped improving human resources and timeliness, quality of services, Customers satisfaction and some other indirect effects.

Core Course Code : MCF-316

Core Course Title : Risk Management and Insurance

Course Outcomes: This Course will provide in-depth look at what constitutes risk management, its importance, the process, the methods of managing risk, how its about understanding, analyzing and addressing potential risks to ensure objectives are achieved etc.

Core Course Code : MCF-314

Core Course Title: Security Analysis

Course Outcomes:

- The course Security Analysis is about valuing the assets, debt, warrants, and equity of companies from the perspective of outside investors using publicly available information.
- This will supplement a thorough understanding of Financial statements, which are an important source of this information.

SEMESTER-IV

Core Course Code: MC-401

Core Course Title: Corporate Governance & Ethics

Course Outcomes:

- This course will make the students know about how Corporate Governance is about enabling organizations to achieve their goals, control risks and assuring compliance.
- The course incorporates the set of rules that define the relationship between stakeholders, management and the board of directors of a company and influence how the company is operating and the major scams that have been done.

Core Course Code: MC-402

Core Course Title: Business Legislation

Course Outcomes:

- This course will make the students know about the availability of the laws which help to provide certainty and stability to the customers of the **business**, besides providing a means to

resolve disputes and protect the public against any wrongdoings for ensuring better profits or assured sustenance in a highly competitive market.

Core Course Code: MCF-412

Core Course Title: Financial Market and Services

Course Outcomes:

- This Course includes TheFinancial Markets –An Overview, Money Market, Capital Markets, Development Financial Institutions, Mutual Funds, Primary Market, Secondary Market or Stock Market, Markets For Derivatives, Provident Fund, Pension Funds, PFRDA ,Insurance Companies and IRDA.

Core Course Code: MCF-414

Core Course Title: Portfolio Management

Course Outcomes: Through this course work, students will get to know about Portfolio management which presents the best investment plan to the individuals as per

- their income,
- budget, age and
- ability to undertake risks,
- how to minimizes the risks,
- to provide customized investment solutions to clients as per their needs and requirements.

Core Course Code: MCM-421

Core Course Title: Retail Management

Course Outcomes:

- The course Retail Management gives insight into the principles of fashion marketing, retail buying and merchandising and imparts basic fabric knowledge.
- It will include Introduction to Retail Marketing, Concept and Definition of Retail Marketing, Characteristics or Features of Retail Marketing, Importance of Retail Marketing, Functions of Retail Marketing, Emergence of Organization of Retailing, Development of Retail Marketing in India and Benefits of Retail Marketing.

Core Course Code: MCM-422

Core Course Title: Rural Marketing

****

DEPARTMENT OF SANSKRIT

Programme specific outcomes:

Sanskrit is the most ancient and perfect language among all the great languages of the world. It is most scientific and interesting language also in the world. Through Sanskrit literature we may knew our ancient history, culture, religion, social life, philosophy, linguistics, values ethics etc. Now Sanskrit is closely related with computer too through which researchers, academicians, readers and scholars are benefitted. Use of computer technology for facilitating Sanskrit studies in the form of conversational sentences, architectural science, astronomy etc. The academic programme of BA pass course and BSc (II yr) is assigned to inculcate ethical values, in depth understanding of rich heritage and dynamic prevalent scenarios of the nation further to enhance communication skills like listening, speaking, reading, writing to make students eligible for higher education and to prepare for related job prospectus.

Course Outcome:

BA-I (SANE 101, 102):

These courses aim to enrich student's mindset and inculcating moral values through educational stories, shlokas, a commendable work of classical literature by Narayan Pandit's Hitopdesh and Bhartrihari's 'Nitishatakam'. Through Srimadbhagvad Gita's 2nd chapter 'Sankhyayog' the students will manage their cognitive, affective domain, confusion and conflicts of mind. A part of Sanskrit grammar like shabad roop, dhatu roop, chhand, sandhi and basic rules of translation has been included to enrich grammatical base of students.

BA-II (SANE 201, 202):

These courses aim to acquaint students with a view to give knowledge of ancient Indian dramatic system through Bhasa's 'Panchratram' and Raghuvansh of Kalidas. To familiar them with some commendable writers of classical Sanskrit literature like Banabhatta, Dandin, Subandhu, Ambikaduttvyas, Vishnu Sharma. Grammar is very important part of this language for making sentences, to know appropriate meaning of texts, oral communication & perfection through samasa, krit pratyay, pratyahar sutra, Sanskrit patra lekhan, tadhit pratyay, vachya parivartan, translataion and to make them familiar with Vardraj's simple analysis on Sangya prakranam.

BA-III (SANE 301, 302):

These courses aim to intoduce the students with the immortal creation 'Abhigyan Shakuntalam' by Mahakavi Kalidas and general outline of Vedic Sanskrit literature like Samhita, Brahaman, Aaranayak upnishad. The course is intended for making the students acquainted with two of the highly adored mahakavya namely Ramayan and Mahabharata in order to have impact of grand teachings of both mahakavya that might sanctify the teachings and beliefs of upcoming learner of Sanskrit. To familiar them with examples of various alankars and vardraj simple analysis of vibhaktyarth prakranam and developing of writing skills through essay writing.

SANC {CXL 301 (ii), CXL401 (ii)}:

These courses aim for making students acquainted with grand teachings of Ramayan, Mahabharta, Upnishads, Shrimadbhagvad Gita, Chankyaniti, to introduce the students about the

masterly piece of Sanskrit prose for enriching students' mindset through lofty teaching scattered in Hitopdesh, a great repository of moral lessons - commandable work of Sanskrit literature by Vishnu Sharma and Pandit Narayan. A part of Sanskrit grammar like Svar sandhi, Shabad Roop, Dhatu Roop has also been included to enrich the grammatical base of students.

****

DEPARTMENT OF ENGLISH

Programme Outcome of Different Courses

B.A. (English as Compulsory Subject)

1. It helps in developing a better understanding of words which improves students various analytical skills.
2. It helps in developing excellent writing and communication skills.
3. A bachelor's degree in English literature assures mastery and expertise over the entire literature that has been produced in the language so far, along with the socio-cultural-historic understanding associated with the language.
4. Learning English language provides ample career opportunities to students ranging from teaching jobs to media related professions.

B.A. (Functional English)

1. This course helps the students to practice the ways in which English language functions.
2. In this course students are trained to use proper English for business, financial, technical and academic communication effectively.
3. This course is a specially designed practical course that engages with the real life usages of the language. Students are made to engage in role plays, public speaking sessions, mock business meets, student media productions etc.
4. Students focus more on the day to day practical usage of the language.

B.A. (English Honours)

1. English language is counted as one of the cornerstones of all global system and structures, so proficiency in it is a necessity.
2. This course helps to study and analyse a number of literary works from around the world.
3. It helps the students in building their personality.
4. This course opens up for students a wide range of professional arena by collaborating with many fields such as Mass Communication, editing, eligibility for many competitive exams.

5. It develops ability of reading between the lines.

M.A. (English Literature)

1. This course imparts training to students in comprehending and interpreting texts along with introducing various ideologies, political systems and world history.
2. Study of literature gives way to critical writing from feminist point of view, or it might ignite in students a passion for gender studies.
3. This course develops critical thinking of students through years of examining, criticizing and over analyzing fictional incidents and characters that change the way students look at life and the people around them.
4. It provides a strong foundation to quality in the NET (National Eligibility Test) or the State Lvel Eligibility Test (SLET) of a State Government to join as a lecturer in a college or university.

****

दयानंद महाविद्यालय, हिसार

हिंदी विभाग

कार्यक्रम विशिष्ट परिणाम

त्रिभाषा सूत्र से हिंदी की महत्वता और अनिवार्यता को आवश्यक माना गया है, शिक्षा के क्षेत्र में भी आज मातृभाषा हिंदी की सफलता देखी जा सकती है। हिंदी आज विश्व की दूसरी सबसे ज्यादा बोली जाने वाली भाषा है। इसलिए प्रत्येक क्षेत्र में आज हिंदी को कामयाबी से देखा और समझा जा सकता है। जनसंचार में आज हिंदी अपना अद्वितीय रूप लिए हुए है। विभिन्न समाचार पत्रों एवं चैनलों में आज संपादक का अहम किरदार होता है। हिंदी का अध्ययन करके उस भूमिका में खरे उतर सकते हैं। हिंदी फिल्मों में गीत लेखन एवं संवाद लेखन आदि बहुत से क्षेत्र हैं, जहाँ हिंदी की भूमिका को तलाशा जाता है। विदेश मंत्रालय में दुभाषिए के रूप में हिंदी भाषा के प्रवक्ता के रूप में भी अपना भविष्य देख सकते हैं।

स्नातक प्रथम वर्ष (प्रथम सेमेस्टर-101) (द्वितीय सेमेस्टर-102)

इस पाठ्यक्रम में मध्यकालीन काव्य कुंज में निर्धारित कवियों के साहित्यिक परिचय, उनकी विशिष्ट रचनाओं, काव्य में निहित अनुभूति और अभिव्यक्ति सौष्ठव को समझ पाएंगे। हिंदी साहित्य के इतिहास में साहित्य इतिहास लेखन परंपरा आदिकाल का नामकरण, परिस्थितियां, प्रवृतियां एवं रासो काव्य की जानकारी प्राप्त कर सकेंगे। काव्यशास्त्र के माध्यम से काव्य के तत्व, रस, अलंकार, शब्द शक्तियों का ज्ञान प्राप्त कर भाषा में उनका प्रयोग कर पाएंगे। द्वितीय स्तर के पाठ्यक्रम में जयशंकर प्रसाद जी द्वारा रचित ध्रुवस्वामिनी नाटक व नाटककार की जानकारी मिलेगी। हिंदी साहित्य के इतिहास में भक्ति काल के माध्यम से भक्ति की विभिन्न धाराओं का ज्ञान उन्हें मिलेगा जो उनके नैतिक विकास के साथ–साथ सामाजिक विकास में भी सहायक होगा। व्यवहारिक हिंदी के माध्यम से भाषा के साथ–साथ व्याकरण का भी ज्ञान मिलेगा।

स्नातक द्वितीय वर्ष (तृतीय सेमेस्टर–201) (चतुर्थ सेमेस्टर–202)

इस सत्र के पाठ्यक्रम में आधुनिक हिंदी कविता में निर्धारित कवियों के साहित्यिक परिचय उनकी विशिष्ट रचनाओं में निहित काव्य सौष्ठव, अनुभूति और अभिव्यक्ति सौष्ठव को समझ पाएंगे। हिंदी साहित्य के इतिहास में रीतिकाल के वर्गीकरण, उनमें शामिल कवियों व उनके काव्य की जानकारी प्राप्त कर सकेंगे। प्रयोजनमूलक हिंदी में कंप्यूटर और अनुवाद की जानकारी प्राप्त कर हिंदी भाषा में इसका प्रयोग कर पाएंगे। चतुर्थ सत्र के पाठ्यक्रम में कथाक्रम मैं निर्धारित कहानीकारों के साहित्यिक परिचय, कहानियों की वस्तु पक्ष तथा कला पक्ष की जानकारी प्राप्त कर सकेंगे। हिंदी साहित्य के इतिहास में आधुनिक काल से गद्य की विभिन्न विधाओं, उपन्यास कहानी नाटक निबंध के उद्‌भव व विकास की जानकारी प्राप्त कर सकेंगे। पारिभाषिक शब्दावली के स्वरूप, महत्व, गुण व इसके विकास में सक्रिय विविध संप्रदायों की जानकारी प्राप्त कर भविष्य में हिंदी भाषा के विकास में योगदान कर सकेंगें।

स्नातक तृतीय वर्ष (पंचम सेमेस्टर–301) (षष्टम सेमेस्टर–302)

इस पाठ्यक्रम में समकालीन हिंदी कविता में निर्धारित कवियों के साहित्यिक परिचय, उनकी विशिष्ट रचनाओं के काव्य सौष्ठव, अनुभूति व अभिव्यक्ति सौष्ठव को समझ पाएंगे। हिंदी साहित्य का आधुनिक काल कविता के माध्यम से आधुनिक काल की कविता की विकास की विभिन्न धाराओं की जानकारी प्राप्त कर सकेंगे। प्रयोजनमूलक हिंदी में पत्र लेखन संक्षेपण पल्लवन की जानकारी प्राप्त करें हिंदी भाषा के विकास में योगदान कर पाएंगे। षष्टम सेमेस्टर के पाठ्यक्रम में पाठ्यपुस्तक गद्य गौरव में निर्धारित लेखकों की साहित्यिक परिचय निबंधों की वस्तु पक्ष कला पक्ष तथा गद्य की विभिन्न विधाओं की जानकारी प्राप्त कर सकेंगे हरियाणवी भाषा और साहित्य का इतिहास में हरियाणवी भाषा के उद्‌भव और विकास बोलियों, सांग परंपरा आधुनिक साहित्य आधुनिक साहित्य गद्य एवं पद्य साहित्य की जानकारी पद्य साहित्य की जानकारी प्राप्त कर हिंदी भाषा में इनका प्रयोग कर सकेंगे।

प्रयोजनमूलक हिंदी से पत्रकारिता के विभिन्न अंगों की जानकारी प्राप्त कर हिंदी भाषा के विकास में भविष्य में योगदान कर सकेंगे।

बीएससी द्वितीय वर्ष (CXL 301)

इस पाठ्यक्रम में 'अभिनव काव्य गरिमा' में निर्धारित कवियों के साहित्यिक परिचय विशिष्ट रचनाओं के काव्य–सौष्ठव, अनुभूति पक्ष व अभिव्यक्ति पक्ष की जानकारी प्राप्त कर सकेंगे। निबंध लेखन के द्वारा विभिन्न विषयों की जानकारी प्राप्त कर हिंदी भाषा के विकास में योगदान कर सकेंगे। पत्र लेखन में वैज्ञानिक शब्दावली की जानकारी प्राप्त कर हिंदी भाषा में इनका प्रयोग कर पाएंगे।