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)

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PROGRAMME OUTCOME, PROGRAMME SPECIFIC OUTCOME, COURSE OUTCOME

INDEX

DAYANAND COLLEGE, HISAR

PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES, COURSE 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 Programme in Bachlor of Science (B.Sc.)

- B.Sc. Bachelor 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.
- They 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.
- After completion of this programme, students may go for higher studies like M.Sc., and research etc.
- Students after this programme 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, Dairy/Food industries 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 inculcate the ability for Ethical values and for the application of acquired knowledge in various day to day life activities like Health, Sanitization, Immunization, Nutritious diet, Environment awareness etc.

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 (entire)

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.

Course Outcomes: Department of Biotechnology

Semester I:

Introduction to Biotechnology (BIT101 L): 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.

Biochemistry (BIT102 L): The study of biochemistry helps to understand the chemical concepts of biology.

Semester II:

Microbiology (BIT 201L): 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.

Biochemistry (BIT 202L): 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 (as old syllabus)

Paper VI

Immunology:

- Immunology deals with the study of basic immune system and how it acts inside the body.
- On successful completion of the subject the student should have understood: Immunity, Antigen, Antibody, Cells of immune system and their function and regulations

Paper VII

Molecular biology:

- The subject provides basic concepts of genes and helps to understand the molecular mechanisms of living forms.
- On successful completion of the subject the student should have understood the molecular aspects of Molecular biology

Semester IV

Paper VIII

Recombinant DNA Technology:

- The subject gives knowledge about how to isolate and amplify gene.
- It also provides understandings of cloning methodologies and applications of r DNA technology in various fields

Paper IX

Bioinformatics:

- 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.

Semester V

Paper XI

Animal Biotechnology:

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

Paper XII

Plant Biotechnology:

- 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.

Semester VI

Paper XIII

Microbial Biotechnology:

- It gives basic idea to analyze the effect of various environmental factors on the growth of bacteria &study the fermentation products.

*** Paper XV**

Project Work (In House):

- Develop an ability to solve, analyze and interpret data generated from experiments done in project work or practical courses.
- To study different techniques of plant biotechnology and microbiology techniques during project work.

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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 (old pattern as followed by KUK For batch 2017-19)

BT-114 Molecular Genetics

- 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.

BT-115 Plant Biotechnology

- 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,

BT-116 Microbial Biotechnology

- It gives basic idea to analyze the effect of various environmental factors on the growth of bacteria &study the fermentation products.

BT-117 Immunology

- 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**.**

Semester IV

BT-120 (Environmental Biotechnology)

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

BT-121 (Animal Biotechnology)

- Remember and Understand the Fundamental Concepts of Animal Cell Culture techniques.

- Understand and envision the future Commercial aspects of Animal Cell culture

(BT 123)Project Report

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.

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DEPARTMENT OF BOTANY

PROGRAMME SPECIFIC OUTCOMES

Three Years Degree Programme in B.Sc. Medical with Botany

- Students studying in B.Sc. Medical, acquire the knowledge of various plants groups like algae, fungi, bryophytes, pteridophytes, seeds plants and microbes.
- 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 of Botany.
- 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.
- Students get the knowledge about the structure, function and development of living organisms of molecular, cellular, organismic level and ecological level.
- They apply ethical principles to biological sciences and research.
- Students opting for B.Sc. Medical with Botany can make their career in Pharmaceuticals, Food Processing industries, Hospitals and Agriculture biotechnology.
- Botany students can move to serum/vaccine institutes, nanoparticle research and environmental biotechnology.
- Knowledge of Botany helps students in developing skills for wildlife and forest conservation.
- It gives the knowledge and skills to identify the plants used as Ethno botanical medicines/herbs etc.

B.Sc. Medical with Botany

COURSE OUTCOMES

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 – I (Course Name- Biology and Diversity of Seed Plants – I)

- After completion of this course, students come to know about how the age of life an earth is divided in Geological time scale.
- Students gets the knowledge of fossils and process of fossilization.
- Students come to know, how the first seed plants evolved on the earth and what are their importance.
- Students gets the information about distribution, structure and life cycle of common Gymnosperm plants and their industrial, food and medicinal values for human beings.
- This Course also gives information about primitive flowering plants of past ages.
- The Course is helpful for students in their career progression and research on seed plants.

Botany Paper – II (Course Name- Plant Anatomy)

- 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.

- The Paper provides employment opportunity to students in wood/timber industry and in anatomical research.

SEMESTER – IV

Botany Paper – I (Course Name- Biology and Diversity of Seed Plants – II)

- 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.
- Importance of herbarium and major herbaria and botanical gardens of the world.
- Students get scientific knowledge about the flora of their surroundings and its importance.

Botany Paper – II (Course Name- Plant Embryology)

- After completion of this course students get the knowledge of structure and parts of flower and various methods of pollination.
- After completion of this course students come to know about structure and development of dicot and monocot embryos and seeds.
- They are able to understand double fertilization in angiosperms and its significance.
- Students are able to understand, how food is synthesized, stored in seeds, production of synthetic seeds and its significance.
- They get the knowledge how the fruits and seeds get disperse from place to place and agency involved in dispersal.

SEMESTER – V

Botany Paper – I (Course Name- Plant Physiology)

- 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.
- Students get aware about the vital phenomenas of plants life like photosynthesis, respiration, seed dormancy etc. and their importance.

Botany Paper – II (Course Name –Ecology)

- 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.
- It gives information on about the distribution of plants in 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.

SEMESTER – VI

Botany Paper – I (Course Name- Biochemistry and Plant Biotechnology)

- 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.

- 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.

Botany Paper – II (Course Name- Economic Botany)

- 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.
- After successful completion of this course the students will come to know about diversity of various groups of lower and higher plants. 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.
- The Study of Economic botany helps students to make their career in agriculture and food industries.

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DEPARTMENT OF CHEMISTRY

B.Sc Medical and Non- Medical with 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. Chemistry also led to the discovery of preservatives.

6. Life savings drugs like cisplatin and taxol are used to cure cancer and AZT FOR AIDS.

7. New chemicals replaced CFC used in refrigerators. Also students will get knowledge about energy resources and good fuels which are part of our day to day life
8. Chemistry also led to the various methods to get better quality of fuels

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 , fuel Chemistry(CCL-503B ,CCS 505B & 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 . This course also provide a deep Knowledge about various energy resources, qualitIes of good fuel , petroleum and lubricants.

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.

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DEPARTMENT OF COMPUTER SCIENCE

PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES, COURSE OUTCOMES.

PROGRAMME OUTCOMES

Three year Degree Programme in Bachelor of Science (BSc):

- Provides basic knowledge on core concepts of Computer Science.
- Ability to solve problems using programming languages and software tools.
- Capable of analyzing, designing, developing, testing and implementing software systems.
- Acquire skill in Mathematics, Electronics and Computer Science courses.
- Empowered with analytical mind and critical thinking.
- Ability to communicate the technical aspects of systems with peers and customers.
- Possess employability and entrepreneurship skills.

PROGRAMME SPECIFIC OUTCOMES

- Ability to apply knowledge of computing, mathematics, and basic sciences that may be relevant and appropriate to the domain.
- Ability to analyze a problem, identify and define the computing requirements, which may be appropriate to its solution.
- Ability to design, implement, and evaluate computer-based system, process, component, or program to meet desired needs.
- An ability to function effectively on teams to accomplish a common goal
- Understanding of professional, ethical, legal, security, social issues and responsibilities.
- Ability to communicate effectively among a range of audiences.
- Ability to analyze the local and global impact of computing on individuals, organizations, and society.
- Recognition of the need for and an ability to engage in continuing professional development.
- Ability to use current techniques, skills, and tools necessary for computing practices.
- Ability to use and apply current technical concepts and practices in the core development of solutions in the form of Information technology.
- Ability to identify and analyze user needs and take them into account in the selection, creation, evaluation, and administration of computer-based systems.
- Ability to incorporate effectively integrate IT-based solutions to applications
- Understanding of best practices and standards to develop user interactive and abstract application.
- An ability to assist and manage the execution of an effective project plan.

Semester-1

Course Code	Course 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	Course 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	**Course 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	**Course 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. • Learn the major software and hardware technologies used on computer networks.

Semester-5

Course Code	Course 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	Course 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.

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DEPARTMENT OF COMPUTER APPLICATION

PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES, COURSE OUTCOMES.

PROGRAMME OUTCOMES

Three year Degree Programme in Bachelor of Computer Applications (BCA):

- To work effectively both as an individual and a team leader on multi-disciplinary projects.
- Inculcates the ability to analyze, identify, formulate and develop computer applications using modern computing tools and techniques.
- Improves communication skills so that they can effectively present technical information in oral and written reports.
- Prepares to create design innovative methodologies for solving complex-real life problems for the betterment of the society.
- To integrate ethics and values in designing computer application.
- Use the Systems Analysis Design paradigm to critically analyze a problem.
- Serve as the Web Designers with latest web development technologies.

PROGRAMME SPECIFIC OUTCOMES

- Focuses on preparing student for roles pertaining to computer applications and IT industry.
- Start from the basics and in every semester learns each and everything about computers.
- Develop programming skills, networking skills, learn applications, packages, programming languages and modern techniques of IT.
- Get skill and information not only about computer and information technology but also in common, organization and management.
- Learn programming language such as Java, C++, HTML, etc.
- Information about various computer applications and latest development in IT and communication system is also provided
- Gives overview of the topics in IT like networking, computer graphics, web development, trouble shooting, and hardware and software skills.
- Bachelor in computer applications (BCA) gives a number of opportunities to individuals to go ahead and shine in their lives.
- A few of them being like software programmer, system and network administrator, web designer faculty for computer science and computer applications

Semester-1

Course Code	Course Outcomes
BCA-111 (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-112 (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-113 (Computer Oriented Numerical Methods)	By the end of the course the student will be able to • 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-114 (Logical Organization of Computer - I)	By the end of the course the student will be able to • Understand the concepts of basic logical gates AND, OR, NOT and Universal gates NAND, NOR. • Understand the concept of number systems and number

	representation. • Understand the concept of codes and boolean algebra. • Concept of combinational circuits. • Concept of sequential Logic and circuits.
BCA-115 (Mathematical Foundations-I)	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-116 (Communication Skills)	By the end of the course the student will be able to • Understand about the grammar concepts such as articles, tenses, voices, prepositions. • Do the comprehension passage. • Apply the concept of faxes, e-mail and text messages. • Make official letters and applications and greeting cards.
BCA-117 (Lab –I Windows and Power Point)	By the end of the course the student will be able to • Learn about to the operating system i.e. windows. • Explore the windows application. • Learn about the Microsoft's application i.e. power point. • Design the presentations.
BCA-118 (Lab-II Word and Excel)	By the end of the course the student will be able to • Learn about the Microsoft's application i.e. word and excel. • Explore complete word along with its all the tab. • Explore excel sheet and will be able to know about all the tabs. • Make the document in word. • Make the excel spreadsheet and will be able to do editing.

Semester-2

Course code	Course Outcomes
BCA-121 ('C' Programming)	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-122 (Computer Architecture-I)	By the end of the course the student will be able to • 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-123 (Computer –Oriented Statistical Methods)	By the end of the course the student will be able to • Understand the basic concepts of statistics such as mean, median, mode. • Describe about various distribution patterns. • Learn about correlation and regression. • Understand about the concept of ANOVA. • Learn about significance of testing methods such as Z-test, Student T-test.
	By the end of the course the student will be able to • Understand the propositions and logical operators. • Learn about the group theory.

BCA-124 (Mathematical Foundations-II)	• Understand the concept of linear algebra such as addition, multiplication, inverse and rank of matrices. • Learn about eigen values and vectors
BCA-125 (Accounting & Financial Management)	By the end of the course the student will be able to • Understand about the concepts of financial accounts and types of accounts. • Learn about principles of cost accounting and valuation of stocks. • Learn about pay roll systems. • Understand about the concept of accounting system. • Handle the accounting records.
BCA-126 (Personality Development)	By the end of the course the student will be able to • Learn about the personality & personal grooming. • Develop the interpersonal skills. • Self- confident. • Make the presentation. • Learn about the skills of interview.
BCA-127 (Lab-I Programming in 'C')	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.
BCA-128 (Lab-II Statistical Methods implementation in 'C')	By the end of the course the student will be able to • Learn the basic fundamentals of C. • Implement the statistical method to implement with the help of C programs. • Make the programs of mean. • Learn about the basic of statistical method.

Semester-3

Course Code	Course Outcomes
BCA-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 object.
BCA-232 (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-233 (Computer Architecture-II)	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-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 . • Describe the concepts of Keys, integrity constraints, tables , views.
BCA-235 (Structured System Analysis & Design)	By the end of the course the student will be able to • Able to understand the concept of System Development and life cycle. • Concept of tools to structured analysis. • Knowledge about files and database system. • Concept of system testing.
	By the end of the course the student will be able to • Students will have a solid foundation of mathematical processes at a level comparable to that of students graduating with a B.S. in Mathematics at other universities. Processes should include (but are not limited to) a proficiency in logic, problem solving, and

BCA-236 (Mathematical Foundations-III)	methods of proof. • Explain the fundamental concepts from the foundations of mathematics and its role in modern mathematics and applied contexts.
BCA-237 (Lab-I Programming in '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. • Uses objects and **classes**. • Declares objects and **classes**. • Program in operator overloading. • Programs in inheritance concept.
BCA -238 (Lab-II Implementation of Data Structure in "C++")	By the end of the course the student will be able to • Ability to analyze algorithms and algorithm correctness. • Ability to write programs in searching and sorting techniques. • Ability to write programs in stack queue and linked list operation. • Ability to have knowledge of tree and graphs concepts.

Semester-4

Course Code	**Course Outcomes**
BCA-241 (Web Designing-I)	By the end of the course the student will be able to • Analyze a **web** page and identify its elements and attributes. • Concept of **web** pages using XHTML and Cascading Style Sheets. • Concept of form images. • Build dynamic **web** pages using JavaScript (Client side programming). Create XML documents and Schemas.
BCA-242	By the end of the course the student will be able to

(Data Structures-II)	• 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-243 (Operating System)	By the end of the course the student will be able • High-level understand what is an operating system and the role it plays • A high-level understanding of the structure of operating systems, applications, and the relationship between them. • Some knowledge of the services provided by operating systems. • Exposure to some details of major OS
BCA-244 (Relational Data Base Management System)	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.
BCA-245 (Management Information System)	By the end of the course the student will be able • Define the key terms. • Describe the use and function of information systems • Describe and evaluate information systems development processes and techniques. • Identify and evaluate hardware and software requirements for information systems. • Explain the security risks associated with management information systems.
	By the end of the course the student will be able to • Students will have a solid foundation of mathematical processes at a level comparable to that of students graduating with a B.S. in Mathematics at other

BCA- 246 (Mathematical Foundations-IV)	universities. Processes should include (but are not limited to) a proficiency in logic, problem solving, and methods of proof. • Explain the fundamental concepts from the foundations of mathematics and its role in modern mathematics and applied contexts.
BCA-247 (Lab-I Web designing using HTML)	By the end of the course the student will be able to • Be able to use HTML programming language. • Be able to use design program • Uses the program web page makers. • Create a web page and add different font .
BCA-248 (Lab-II ORACLE)	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
UCC -581 (Environment Studies)	By the end of the course the student will be able to • Understand key concepts from economic, political, and social analysis as they pertain to the design and evaluation of environmental policies and institutions. • Appreciate concepts and methods from ecological and physical sciences and their application in environmental problem solving. • Appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems. • Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world.

Semester-5

Course Code	Course Outcomes
BCA-351 (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-352 (Micro-Processor)	By the end of the course the student will be able to • Draw a simple memory schema, explain the planning of memory of microcomputer system. • Examine the construction of CPU, know registers and bus systems. • Compare microprocessors and microcontroller. • Know the structural differences between microprocessors and microcontrollers.
BCA-353 (Software Engineering0	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-354 (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-355 (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. • 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-356 (Web Designing-II)	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-357 (Lab-I based upon 352)	By the end of the course the student will be able to • To study programming based on 8086 microprocessor. • To study modular and Dos/Bios programming using 8086 micro processor. • To study to interface 8086 with I/O and other devices.
BCA-358 (Lab-II based upon 355 Programming in "C++")	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. • 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.

Semester-6

Course Code	Course Outcomes
BCA-361 (Core Java)	By the end of the course the student will be able • Gain knowledge about basic Java language syntax and semantics to write Java programs and use concepts such as variables, conditional and iterative execution methods etc. • Understand the fundamentals of object-oriented programming in Java, including defining classes, objects, invoking methods etc. and exception handling mechanisms. • Understand the principles of inheritance, packages and

	interfaces. • Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs.
BCA-362 (Introduction to Linux)	By the end of the course the student will be able to • Understand the fundamental concepts of open-source operating system Linux. • Understand the basic set of commands and editors in Linux operating system. • Learn shell programming in Linux operating system. • Distinguish various filter and server commands and Demonstrate the role and responsibilities of a Linux system administrator.
BCA-363 (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-364 (Visual Basic)	By the end of the course the student will be able to • Understand an overview of computers and computer programming and Visual Basic applications. • Understand how to perform operations and store results. • Understand the concept of data-driven program execution flow control in Visual Basic programming. • Understand additional Visual Basic controls and loops to do repetition. • Prepare various projects by helping visual programming.
	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. • Be able to use various multimedia authoring tools and

BCA-365 (Multimedia Technology)	able to design and create interactive multimedia products. • Evaluate existing multimedia products that can be used to design instructional and informational material. • Apply acquired knowledge in the field of multimedia in practice and independently continue to expand knowledge in this field.
BCA-366 Introduction to .NET	By the end of the course the student will be able to • Design web applications using .NET and controls in web applications. • Debug and deploy .NET web applications. • Create database driven .NET web applications and web services. • Understand and be able to explain Security in the .NET framework. • Develop Assemblies and Deployment in .NET, Mobile Application Development.
BCA-367 (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 literatures 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.

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DEAPERMENT OF ELECTRONICS

AIMS OF BACHELORS DEGREE PROGRAMME WITH ELECTRONICS DISCIPLINE

The 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 prepares 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. with Electronics discipline

The student graduating with Electronics discipline in B.Sc. 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 .

(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.

(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.

Semester-I Course: B.Sc.

Subject: Electronics Paper -I

Nomenclature: -Electronic Devices and Circuits-I

Objective: The objectives of teaching this paper are

1. To make the students familiar with the concepts of physics involved in the working of various electronic devices like PN Diode, Zener Diode and Bipolar Junction Transistor (BJT).
2. To make the students understand various applications of PN Diode and Transistor.

Outcome: After the end of this paper, the students will be able to understand the physics behind the working of a diode and a transistor, their equivalent circuits, various configurations of transistor and their applications (diode/transistor).

Semester –I Course: B.Sc.

Subject: Electronics Paper -II

Nomenclature: -Network Analysis

Objective: The objective of teaching this paper is to make the students familiar with various networktheorems and Two-Port Networks to analyze the electronic circuits.

Outcome: After the end of this paper, the students will have better understanding about electronic circuits and will be able to analyze their performance.

Semester-II Course: B.Sc.

Subject: Electronics Paper-1

Nomenclature: - Electronic Devices and Circuits –II

Objective: The objectives of teaching this paper are

1. To make the students understand the concept of operating point and its stability of a transistor.
2. To impart knowledge to students about Multistage Amplifier and its Frequency Response.
3. To make the students familiar with the working of JFET and MOSFET transistors and their characteristics.

Outcome: After the end of this paper, the students will be able

1. To bias the transistor properly using a suitable biasing circuit.
2. To understand and analyze the circuits of the Amplifiers.
3. To understand the difference between FET and BJT transistors and their working.

Semester-II Course: B.Sc.

Subject-Electronics Paper-II

Nomenclature: -Digital Electronics

Objective: The objectives of teaching this paper are

1. To make the students familiar with various number systems and their inter-conversion.
2. To acquaint the students with basic logic gates, Boolean algebra and hardware minimization techniques used while designing digital circuits.
3. To impart knowledge to students about various logic families and arithmetic combinational circuits.

Outcome: After the end of this paper, the students will be able

1. To convert a number from one system to another number system.
2. To design a digital circuit with optimized hardware required.
3. To understand various logic families and combinational circuits.

Semester-III Course: B.Sc.

Subject: Electronics Paper-I

Nomenclature: - Op-amp and Linear Integrated Circuits

Objective: The objectives of teaching this paper are

1. To make the students familiar with various amplifiers.
2. To acquaint the students with basic differential amplifier and their applications.
3. To impart knowledge to the students about various steps used in fabricating IC.
4. To understand the working principle of various regulated power supplies and their applications.

Outcome: After the end of this paper, the students will be able

1. To use operational amplifier in different application based circuits.
2. To know how integrated circuits are used to reduce the complex circuitry.
3. To use regulated power supply in various electronic equipments.

Semester-III Course: B.Sc.

Subject: Electronics Paper-II

Nomenclature: -Digital Electronics-II

Objective: The objectives of teaching this paper are

1. To make the students familiar with various combinational and sequential circuits.
2. To acquaint the students with various types of counters and registers.

Outcome: After the end of this paper, the students will be able

1. To design various combinational circuits used for many applications in digital system.
2. To design any counter circuit for a specific use.
3. To understand various types of registers and the applications of registers to store the digital data.

Semester-IV Course: B.Sc.

Subject: Electronics Paper- I

Nomenclature: - Oscillators and Multivibrators

Objective: The objectives of teaching this paper are

1. To make the student familiar with classification of amplifiers and feedback concept.
2. To make the students familiar with various amplifiers and their efficiency.
3. To acquaint the students with the design concepts of oscillators and multivibrators.

Outcome: After the end of this paper, the students will be able

1. To use the feedback concept as per the requirement of the circuit.
2. To understand various types of amplifiers and their applications.
3. To use oscillators and multivibrators in various applications depending on frequency an

shape of waveforms.

Semester-IV Course: B.Sc.

Subject: Electronics Paper-II

Nomenclature: - Advance Digital Electronics

Objective: The objectives of teaching this paper are

1. To make the student familiar with Digital to analog conversion and analog to digital conversion.
2. To make the students familiar with various memory and their parameters.
3. To acquaint the students with the design concepts of Programmable Logic devices.

Outcome: After the end of this paper, the students will be able

1. To use the DAC and ADC as per the requirement of the circuit.
2. To understand various types of memory and their applications.

Semester-V Course: B.Sc

Subject: Electronics Paper -I

Nomenclature: -Microprocessor Architecture and Programming -I

Objective: The objectives of teaching this paper are

1. To make the student familiar with concept of simple as possible computer.
2. To make the students familiar with various instructions used in SAP-1 & SAP-2 Computer.
3. To acquaint the students with the design concepts of 8 bit microprocessor and working of microprocessor 8085.

Outcome: After the end of this paper, the students will be able

1. To understand the concept of SAP -1 and SAP-2 computer.
2. To understand various instructions used for low level programming.
3. To write assembly level programs on microprocessor 8085 kit.

Semester-V Course: B.Sc.

Subject: Electronics Paper-II

Nomenclature: - Electronic Communication.

Objective: The objectives of teaching this paper are

1. To make the student familiar with modulation & demodulation.
2. To make the students familiar with AM,FM and pulse modulation.
3. To acquaint the students with the Digital Modulation Techniques

Outcome: After the end of this paper, the students will be able

1. To understand the concept of AM and FM.
2. To understand various digital modulation techniques.

Semester-VI Course: B.Sc.

Subject: Electronics Paper- I

Nomenclature: - Microprocessor Architecture and Programming -II

Objective: The objectives of teaching this paper are

1. To make the student familiar with the concept of interrupts.
2. To make the students familiar with interfacing technique using PPI 8255 and Programmable Interval Timer 8253.
3. To acquaint the students with the design concept DMA.

Outcome: After the end of this paper, the students will be able

1. To understand the use of interrupts used in microprocessor 8085.
2. To understand the interfacing of IC 8255 as well as interfacing & programming of 8253.
3. To write assembly level programs on microprocessor 8085 kit for various applications.

Semester-VI Course:- B.Sc.
Subject: Electronics - Paper- II
Nomenclature: - Introduction to C and its programming

Objective: The objectives of teaching this paper are

1. To make the student familiar with high level programming language C.
2. To make the students familiar with entering input data, writing output data, functions, concept of arrays and pointers in C language.

Outcome: After the end of this paper, the students will be able

1. To understand the C fundamentals.
2. To understand various data types used for programming and will be able to write programs.

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Departments of Mathematics

Course Outcomes

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

B.Sc. and MSc course aims to develop the ability to think critically, logically and analytically and hence used Mathematics in every day life.

It appreciate the usefulness , power and beauty of mathematic 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 .

During Msc course we came across ordianary differential equation ,real and complex analysis,topology,analytic number theory ,partial differential equations ,mechanics of solids, flued dynamics and algebraic coding theory. Apart from this the students learn scientific aspects of various subjects with the help of programing languages like C++ ,FOTRAN and MATLAB.

Semesters	Course	Code	Course Objective	Course Outcomes
1st	Algebra	CML 106	The course on algebra deals withs advance topics on matrices viz. rank , eigen values and homogeneous and non homogeneous systems, solution of cubic and bi – quadratic equations and de Moivre'stheorem.	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,	The student will be able to understand basic properties ofLimit, continuity and

			continuity, differentiability of functions and tracing of curves.	derivability of functions, series expansion indeterminate forms, 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 ordinarydifferential equations andLaplace Transforms deals withsome important concepts: Exact differential equations,Orthogonal trajectories, Lineardifferential equations withvariable & constant coefficients and solution of ordinarydifferential equations	The student will be able to understand basic properties ofdifferential equations, Orthogonal trajectories, Linear differentialequations. Apart from this the students will be able to solveODE by Transformation of the equation by changing thedependent variable/ the independent

			usingLaplace Transforms.	variable. Solution by operators of non-homogeneous linear differential equations. Reduction of order of a differential equation. Method ofvariations of parameters. Solution of Simultaneous DifferentialEquations and Total Differential Equations. Student will also be able to understand basic properties of Laplace and InverseLaplace 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	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.

			technique are the main objective this course aims to deliver.	
	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 using the numerical analysis software and computer facilities.	They can understand the theoretical & practical aspects of use of numerical analysis.
4^{th}	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 geometry groups and rings, subgroups, fields and some results related to it.	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.
	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.
6th	Linear Algebra	CML 605	The objective is to about vector spaces, sub spaces,	Students will know about vector spaces, Subspaces,

			homomorphism and isomorphism also linear transformation , Eigen values and Eigen vectors, inner product space.	and solve linear system and characterize the set of vector.
	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 conicoid 's, paraboloids, confocal conicoid and enveloping cone of conicoid.	The students will be able to learn about central conicoid 's, paraboloids, confocal conicoid and enveloping cone of conicoid.

Course Outcomes Departments of Mathematics of PG Programme are:

Semesters	Course	Code	Course Objective	Course Outcomes
1st	Algebra	MAL511	To familiarize students with some properties of groups and fields which have many applications in Coding Theory.	The student will be able to familiarize students with some properties of groups and fields which have many applica tions in Coding Theory.
	Real analysis	MAL512	To acquaint the students with the topics of Riemann-Stieltjes integral, sequence and series of functions, power series, functions of several variables and	The student will be able to understand students the topics of Riemann-Stieltjes integral, sequence and series of functions, power series, functions of several variables and with the basic concepts of measurability of sets.

			with the basic concepts of measurability of sets.	
	ORDINARY DIFFERENTIAL EQUATIONS -1	MAL514	To acquaint the students with existence and uniqueness of solutions of initial value problems, continuation of solutions, differential inequalities and with Sturm-Liouville boundary value problems.	The student will be able to understand existence and uniqueness of solutions of initial value problems, continuation of solutions, differential inequalities and with Sturm-Liouville boundary value problems.
	Complex analysis	MAL515	To familiarize with the analytic and meromorphic functions and their applications.	After completing this course students will able to understand the concept of analytic and meromorphic functions
	PROGRAMMING WITH FORTRAN (THEORY)	MAL516	To familiarize the students with the basics of computer and programming concepts of scientific language Fortran 90/95	They can understand the theoretical & practical aspects of use of Fortran.
2nd	Abstract Algebra	MAL 521	To familiarize students with some properties of rings and	After completing this they will able to understand some properties of rings and

			modules.	modules
	MEASURE AND INTEGRATION THEORY	MAL522:	To acquaint the students with the topics of measurable functions, Lebesgue integral,	After studying this course the students will be able to understand with the topics of measurable functions, Lebesgue integral

	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.	Objectives: To fan with linear systen non-linear systems with some motiv calculus of variatio
	COMPLEX ANALYSIS-II	MAL525	Objectives: To familiarize the concepts of analytic continuation, properties of entire functions and conformal mapping.	
3rd	TOPOLOGY	MAL631	To familiarize the students with basics of a topological space, compactness, connectedness, separation axioms and product spaces..	

	PARTIAL DIFFERENTIAL EQUATIONS	MAL 632:	To familiarize the students with linear and non-linear partial differential equations in R n and various methods to obtain the solution of partial differential equations.	After studying this course students familiarize with linear and non-linear partial differential equations in R n and various methods to obtain the solution of partial

				differential equations.
	MECHANICS OF SOLIDS-I	MAL633:	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	The students getting the 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
	ANALYTIC NUMBER THEORY	MAL635:	To study some important results of number theory	The students will get some important results of number theory
	FLUID MECHANICS	MAL636:	The objective of this paper is to make the students familiar with the flow properties of ideal fluid.	c flow properties of ideal fluid
	ADVANCED DISCRETE MATHEMATICS	MAL637:	To study some important results of discrete mathematics with their applications.	The students will familier some important results of discrete mathematics and their applications.
	DIFFERENCE EQUATIONS	MAL638:	To familiarize the students with difference equations, stability theory and asymptotic methods.	The students will get an idea about difference equations
4th	FUNCTIONAL ANALYSIS	MAL641:	To familiarize the students with the topics of Normed linear spaces, Conjugate spaces, Equivalent norms and Inner product spaces	The students will familiar with the topics of Normed linear spaces, Conjugate spaces, Equivalent norms and Inner product spaces
	DIFFERENTIAL GEOMETRY	MAL 642:	To apply the concepts and techniques of differential geometry of curves and	The students will be able to apply the

			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.	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.
	MECHANICS OF SOLIDS-II	MAL643:	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.	The students will be able to understand Two-dimensional elastostistic, problems, fundamentals of Viscoelasticity, Torsion of cylindrical bars, propagation of waves in an elastic solids and variational methods
	INTEGRAL EQUATIONS	MAL644:	To familiarize the students with the concepts of integral equations and various methods for the solutions of different type of integral equations.	The students will be able to understand the concepts of integral equations and various methods for the solutions of different type of integral equations.
	ADVANCED FLUID MECHANICS	MAL645:	The objectives of this paper is to make familiar with the flow properties of real fluids and their applications in science and technology.	The students will familiar with the flow properties of real fluids and their applications in science and technology.

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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, Thermodynamics, Statistical Physics, Spectroscopy, Quantum Mechanics, Nuclear Physics 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 (CPL-102) Electricity and Magnetism-I (CPL-103)
	Course Objective: The course on mechanics deals with some important mathematical Physics concepts, Laws of Motion, Momentum and Energy, Dynamics of A System of Particles, Rotational motion, Gravitation and Elasticity. The course on Electricity and Magnetism deals with Coulomb's law, Electric field, flux, potential, Capacitors, Electrostatics, Magnetostatics, Magnetism and magnetic materials along with the applications of these concepts. **Course Outcome:** On successful completion, the students will be able to ➢ Understand basic mathematical physics concepts, various motion of different objects. ➢ Know the principle behind the rocket motion. ➢ Understand the gauss's divergence theorem, stock's theorem and their uses in Electrostatics and Magnetostatics. ➢ Understand the concepts of classical electrostatics and magnetostatics. ➢ Understand about the various applications of magnetic materials.
Semester II	**Course Name:** Mechanics-II (CPL-202) Electricity, Magnetism and Electromagnetic Theory-II (CPL-203)
	Course Objective: The course on mechanics deals with Lagrangian and Hamiltonian formulation of mechanics, Oscillatory Motion, damping, Special Theory of Relativity with Application. The course on Electricity, Magnetism and Electromagnetic Theory deals with the Electromagnetic induction, A.C. Circuit Analysis, Maxwell's Equations, Electromagnetic wave propagation, Poynting Vector and electromagnetic field transformation. **Course Outcome:** On successful completion, the students will be able to • Understand some advanced notion and formulation of mechanics, SHM and relativistic effects of velocity. • Understand the transformation of normal parameters of mechanics due to

	relativity and mass energy equivalence. • Understand electromagnetic induction and its applications, generation of electromagnetic fields, propagation of wave through different medium. • Get knowledge about the method of A.C. circuit analysis.
Semester III	**Course Name:** Computer Programming and Thermodynamics (PH-301) Wave and optics-I (PH-302)
	Course Objective: The course on Computer Programming and Thermodynamics deals with the Basics of Computer Programming, Syntax Rules for FORTRAN 77 and it Applications, Laws of Thermodynamics, Concepts of Temperature and Entropy, Thermodynamic Potentials, Maxwell's Thermodynamic Relations, Clausius-Clapeyron Equation. The course on Waves and Optics deals with the Interference by Division of Wavefronts and Amplitudes, Newton's Ring, Fresnel's Diffraction, Fraunhofer Diffraction. **Course Outcome:** On successful completion, the students will be able to • Work with FORTRAN 77 programming language to solve various computational problems. • Understand the basic concepts of thermodynamics and thermodynamical processes, working of heat engines and refrigerators. • Understand the phenomenon of interference and its types, various arrangement to get interference pattern. • Understand the phenomenon of diffraction and its types, various arrangement to get diffraction pattern.
Semester IV	**Course Name:** Statistical Physics (PH-401) Wave and Optics II (PH-402)
	Course Objective: The course on Statistical Physics deals with Statistical Description of Micro and Macro Systems, Postulates of Statistical Physics, Phase Space, Maxwell-Boltzmann Distributions, Fermi-Dirac Distribution and Bose-Einstein

	Distributions, Theory of Specific Heat of Solids. The course on Waves and Optics deals with the Polarization, Fourier Analysis, Fourier Transform, Matrix Method in Optics, Geomatical Optics, Fiber Optics and its Applications. **Course Outcome:** On successful completion, the students will be able to • Understand some basic notion of statistical physics including concept of probability. • Get knowledge about the Maxwell-Boltzmann's Statistics, Fermi-Dirac's Statistics and Bose-Einstein's Statistics. • Understand the phenomenon of polarization and its types, working of Nicol Prism, Fiber Optics and its application. • Understand the mathematical concepts of Fourier analysis, Fourier transform, matrix methods and their uses in optics.
Semester V	**Course Name:** Quantum and Laser Physics (PH-501) Nuclear Physics (PH-502)
	Course Objective: The course on Quantum and Laser Physics deals with the Origin of Quantum Physics, de-Broglie Hypothesis with Experimental Verifications, Heisenberg uncertainty principle, Schrodinger Wave Equation its Applications, LASER and its Applications. The course on Nuclear Physics deals with Nuclear Structure and Properties of Nuclei, Nuclear Radiation Decay Processes, Radiation Interactions, Nuclear Accelerators, Nuclear Radiation Detectors. **Course Outcome:** On successful completion, the students will be able to • Understand the basics of quantum mechanics, dual nature of matter and wave. • Get the knowledge of various experiments that verifies the theories of quantum mechanics. • Understand the principle, construction, working and application of LASER systems. • Understand nuclear composition and nuclear properties, Nuclear detectors, reactors and accelerators. • Get the practical knowledge of how energy is being generated by the nuclear reactors and different radioactive decays.

Semester VI	**Course Name:** Solid State and Nano Physics (PH-601) Atomic and Molecular Spectroscopy (PH-602)
	Course Objective: The course on Solid State and Nano Physics deals with some Important Concepts of Crystal Structure, Reciprocal Lattice, Superconductivity, Nanoscience and Nanotechnology with its Applications. The course on Atomic and Molecular Spectroscopy deals with the Basics of Atomic Spectroscopy, Concept of Quantization, Spectroscopic Terms, Vector Atom Models, Effects on Atom in External Fields, Rotational and Vibrational Spectra of Diatomic Molecules, Raman and Electronic Spectra. **Course Outcome:** On successful completion, the students will be able to • Understand the concept of crystal planes and Miller indices, reciprocal lattice and crystal structures of some common crystals such as NaCl, diamond, graphite. • Understand the method to determine various lattice parameters of crystals using X-ray diffraction. • Understand the basics of atomic and molecular spectroscopy, effects of external fields on atom, rotational, vibrational, electronics and Raman spectra for molecules. • Get the knowledge of concept of quantization, vector atom models.

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DEPARTMENT OF ZOOLOGY

Program Specific Outcome of 3 Years

B.Sc. Medical and B.Sc. Medical with Biotechnology

Three year B.Sc. Medical & B.Sc. Med. with Biotechnology Program is developed by Guru Jambheshwar University of Science and Technology, Hisar. In this program, Zoology is included as a part of the course. The study of Zoology will help the students in understanding the living world. This course is the very fundamental requirement on which the enrolled students will be familiarized with basic aspects of the subject.

Specific Outcomes of Three Year Degree Program

- Students have option to prepare for various competitive exams like Civil Service, IFS, Indian Army, Bank PO, Income Tax Department *etc*.
- They may go for higher studies like M.Sc. *etc*.
- They can even setup their own small or large industrial setup.
- They may move to agriculture sector, marketing sector or in various government sectors.
- Such study will open their career in medical science, so that they can develop new vaccines and more effective medicines.
- Students have chance to move in education sector or in multinational companies to make their further career.
- Students get the knowledge about the structure, function and development of living organisms at molecular, cellular, organism level and ecological level.
- Students can apply the acquired knowledge in various day to day life activities like Health sanitization, Immunization and Nutritious diet.
- This will help in improving the quality of their life as well as the life of society in which they live, which ultimately will help in the development of the nation.

B.Sc. 1styear (1stSemester)

The course under this semester will be the very basic need as the enrolled students get familiarized with the basic aspects of the subject. During this semester, the students will gain knowledge regarding the Classification of organisms and their importance in two papers: Paper-I and Paper-II

Paper - I	**Course Code**	**Nomenclature of Paper**
	ZOO 101 L	**Animal Diversity I**

The course in this Paper is the fundamental requirement. The students will learn classification and economic importance of **Kingdom Protista** and **Phylum: Porifera, Coelenterata, Helminthes, Annelida, Arthropoda and Mollusca** and their general study.

Course Outcomes

- Through these studies, students will become aware of various pathogenic protozoans and helminthes and inculcate this acquired knowledge in various day to day activities like health, sanitation, immunization *etc*.
- The students will become able to identify the various organisms on the basis of their general characteristic features
- The students will become expert in classifying the organisms on the basis of their body features
- It will be more beneficial to society in scientific development and hence development of nation as a whole.

Paper - II	Course Code	Nomenclature of Paper
	ZOO 102 L	Animal Diversity II

The course in this Paper is in continuation with the classification of **Phylum: Echinodermata and Protochordates** and their general study. The students will also study **Superclass- Agnatha** in which they will study **Class-Cyclostomata.** The enrolled students will also gain knowledge regarding **Class- Pisces, Amphibia, Reptilia, Aves and Mammalia.**

Course Outcomes

- The students will become able to identify the various organisms on the basis of their general characteristic features
- The students will become expert in classifying the organisms on the basis of their body features
- Hemichordates are the pre-chordates and shows relation between echinoderms and chordates.
- This study will enable the students to identify the poisonous and non poisonous snakes
- Students will come to know how mammals originate on the earth
- Students will learn various flight adaptations used by the birds, which will create curiosity in them

- It will be more beneficial to society in scientific development and hence development of nation as a whole.
- This study will open the doors for students towards the agriculture sector.

B.Sc. 1st year (IInd Semester)

In this Semester the students will learn regarding the Comparative Anatomy and Developmental Biology of various Vertebrates in Two papers: Paper I and Paper II

	Course Code	Nomenclature of Paper
Paper - I	**ZOO 201 L**	**Comparative Anatomy and Developmental Biology of Vertebrates I**

This Paper will prepare the students' regarding the comparative account of various systems in Vertebrates. This paper includes the systems**: Integumentary System, Skeletal System, Digestive System, respiratory System, Circulatory System, Urinogenital System, Nervous System and Sense Organs.**

Course Outcomes

- Students will get the basic knowledge regarding the Comparative Anatomy of Vertebrate, so that they can easily compare various systems of different vertebrates
- They will also gather knowledge related with the evolution of Visceral arches, heart, kidney etc. in vertebrates.
- This study will develop scientific attitude in students', so that they can now start thinking scientifically.

	Course Code	Nomenclature of Paper
Paper - II	**ZOO 202 L**	**Comparative Anatomy and Developmental Biology of Vertebrates II**

Through this Paper the enrolled students will gather knowledge regarding the **Developmental Biology.** The students will come to know how embryonic development (early and late) takes place in different vertebrates. They will also learn regarding the control of development in vertebrates.

Course Outcomes

- **Study of Developmental Biology** will help to understand the molecular, genetical, cellular and integrative aspects of building an organism.
- **Study of Developmental Biology** will provide basic knowledge of Gametogenesis alongwith development of frog
- Knowledge of normal developmental processes will aid in understanding developmental abnormalities, this will help in medicine field.

B.Sc. 2nd year (IIIrd Semester)

The course in this semester will be taught according to the syllabus of Kurukshetra University, Kurukshetra. The Course will be covered in two Papers: Paper I and Paper II

Paper- I	**Life and Diversity Of Chordates** **(From Urochordata to Pisces)**

Course Outcomes

- The students will learn to categorize Chordates on the basis of their general characteristics. This will enable them to understand the origin and evolutionary relationship in different **subphylum of chordates upto Pisces.**
- **The students will become able to differentiate between bony fishes and cartilaginous fishes**
- **This study will create interest of students in Fisheries**

Paper- II	**Biochemistry and Mammalian Physiology I**

Course Outcomes

- Students will also get exposed to strong theoretical and practical background in fundamental concepts of **Biochemistry**.
- This will open their career for M.Sc. Biochemistry and can apply this acquired knowledge to provide cost efficient solutions in biochemical industries.

B.Sc. 2nd year (IVth Semester)

The course in this semester will be taught according to the syllabus of Kurukshetra University, Kurukshetra. The Course will be covered in two Papers: Paper I and Paper II

Paper- I	**Life and Diversity of Chordates** **(From Amphibians to Mammals)**

The students will learn regarding the classification, general characteristics, economic importance, evolution of various class of vertebrates from class Amphibia to Mammalia

Course Outcomes

- The students will now become able to differentiate **chordates from subphylum Pisces to Mammalia**.
- They can understand the evolutionary relationship between different subphylum of chordates.
- This study will enable the students to identify the poisonous and non poisonous snakes
- Students will come to know how mammals originate on the earth
- Students will learn various flight adaptations used by the birds, which will create curiosity in them
- It will be more beneficial to society in scientific development and hence development of nation as a whole.

Paper- II	**Mammalian Physiology- II**

Human Physiology serves as the foundation of modern medicines. This course will teach the students regarding the various aspects of body functions.

Course Outcomes

- The study of Biochemistry will help the students in understanding different metabolic reactions, which takes place in human body.
- Through the thorough study of Human Physiology, the students will understand the normal body functions, enabling more effective treatment of abnormal/disease states.
- This will help them to improve their general fitness and maximize quality of life.
- This will open their ways for M.Sc. Medical Physiology or Animal Physiology or Cell Physiology.

B.Sc. 3rd year (Vth Semester)

The course in this semester will be taught according to the syllabus of Kurukshetra University, Kurukshetra. The Course will be covered in two Papers: Paper I and Paper II

Paper- I	**Environmental Biology**

Study of Ecology enriches our world and is crucial for human well being and prosperity. **Population Study** will focus on demographic information and trends within human population. So, the course under this paper will be too much beneficial for the students.

Course Outcomes

- Such study will teach students how all organisms on Earth will interact with each other and the Earth around them, which reveals: How ecosystems form.
- The students will gain knowledge regarding effect of various environmental factors on organisms and their population.
- Through this knowledge they can aware their society: how to sustain biodiversity even in a changing climate, which is very important for the development of our country.
- The study of population will aware the students: how increasing growth rate of population will slow down the economical development of any country.

Paper- II	**Evolution and Developmental Biology**

The enrolled students will get the knowledge of Evolution, so that they came to know how present organisms evolved from their ancestors. They will also gather knowledge regarding the **Developmental Biology.** The students will come to know how embryonic development (early and late) takes place in different vertebrates. They will also learn regarding the control of development in vertebrates.

Course Outcomes

- **Study of Developmental Biology** will help to understand the molecular, genetical, cellular and integrative aspects of building an organism.
- **Study of Developmental Biology** will provide basic knowledge of Gametogenesis alongwith development of frog and chick.
- Knowledge of normal developmental processes will aid in understanding developmental abnormalities, this will help in medicine field.

B.Sc. 3rd year (VIth Semester)

The course in this semester will be taught according to the syllabus of Kurukshetra University, Kurukshetra. The Course will be covered in two Papers: Paper I and Paper II

Paper- I	**Aquaculture and Pest Management I**
Paper- II	**Aquaculture and Pest Management II**

In this semester the students will gather knowledge regarding fish management and various biotechnological approaches used to increase fish production The course is such designed that the students will also get knowledge of various insect pest, rodents and various pestiferous birds, which cause main damage to field crops. This is a very beneficial course.

Course Outcomes

- Through Pest Management topic, students will gain knowledge regarding the systematic position, life cycle, habits, damage caused and control measures of various insect pests, rodents and pestiferous birds.
- **Study of Insect Pest** will open their field towards Entomology. This will create job opportunities in pesticide and insecticide Industries.
- **Aquaculture will provide knowledge regarding the culture, food and feeding habit of various fresh water fishes.**
- **The enrolled students will also acquire knowledge regarding various biotechnological approach which can be used to increase fish production.**
- The **study of Fishery** will enable the students to setup and maintain their own ponds to culture fishes. Thus, they can start their own fish farm and earn money.

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THREE YEAR DEGREE PROGRAMME IN BACHELOR OR ARTS (B.A.)

PROGRAMME OUTCOME

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.
- 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
- The students acquire knowledge in the field of social sciences, literature and humanities which make them sensitive and sensible enough.
- The B.A. graduates will be acquainted with the social, economical, historical, geographical, political, ideological and philosophical tradition and thinking.
- The program also empowers the graduates to appear for various competitive examinations or choose the post graduate programme of their choice.
- The B. A. program enables the students to acquire the knowledge with human values framing the base to deal with various problems in life with courage and humanity.

- 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.
- Programme provides the base to be the responsible citizen.

Scholastic Competence

- Disciplinary information and strategies including information examination and PC education.
- Ability to utilize different e-assets and web-based media and haggling with mechanical challenges.

Individual and Behavioral Competence

- Self-advancement, wellbeing and cleanliness, self-guideline aptitudes.
- Developing positive attitude for example, sympathy, empathy, social interest, and responsibility.
- 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.
- 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.

DEPARTMENT OF GEOGRAPHY

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.
- 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.

Course Outcomes

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.

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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.

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DEPARTMENT OF PSYCHOLOGY

Programme Specific Outcome

The learning outcomes that a student will be able to demonstrate on completion of a degree level programme may involve academic, behavioural and social competencies as described bellow

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 Outcome: 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

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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.

DEP9ARTMENT OF HISTORY

Thre Year Degree Course (B.A. with History)

Program Specific outcomes

1. Understand background of our religion, customs institutions, administration and so on.

2 nderstand 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.

Course Outcomes

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.

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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-I Opt. (A) MS-05: National Defence and Security

- Familiarize the students about the concept & Essentials of National Defence & Security.
- To provide the knowledge about India's Defence, Nuclear and Foreign policies.
- To provide the knowledge about India's Defence Problems from 1947 to present time.
- Students will be able to understand civil military relations of India.
- Increase awareness among the students about the need, importance, organisation and measures of civil defence.

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

Paper-I Opt. (A) MS-06: National Defence and Security

- Students will be able to understand military Aid to civil war.
- To provide the knowledge about India's Geo-strategic significance in world map.
- Provide a deeper understanding of India's relations with its neighbours and major powers.
- Increase awareness among the students about the War Finance, Taxation, Borrowing and inflation
- To provide the knowledge about Cost of war and economic mobilization in war.

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DEPARTMENT OF POLITICAL SCIENCE

Three Year Degree Course (B.A. with Political Science)

Program Specific 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.

PO7: Political Science goes beyond the politics carried out in a national social system.

PO8: Political Science helps to understand the concept and origin of power and different types of power relationships.

PO9: 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 studenzs 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

Three year Degree Course (B.A. with Public Administration)

Program Specific 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.

PO4: As a field of study, Public administration brings students closer to the political and administrative systems of their country.

PO5: 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.

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DEPARTMENT OF MUSIC

Three year Degree Courese (B.A. with Music Vocal)

Programme Specific Outcomes

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.

Course Outcomes

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 (BMV 111 A): 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 Yaman, Bhupali, 05 Alankar in Sudh Swaras. They will also acquire knowledge about Shastriya Sangeet and Lok Sangeet.

Paper-2 (BMV 112 B: Practical

This is a practical paper where students will be required to demonstrate their skill in 05 Alankaras in Shudh Swaras, Drut Khayal with alap and tanas in Bhupali & Yaman and one Sargam geet in any prescribed raga.

Semester -2

Paper-1 (BMV 121 A): 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 Hamir ragas, Vrindavan Sarangi ragas and Bharav ragas. The students will also learn important definitions associated with music i.e. Naad, Shruti, Varan, Avartan, Tarana, Kan, Khatka, Murki, Gamak, Aalap, Lahshan Geet, Lay and Classification of Indian Musical Instruments.

Paper-2 (BMV 121 B): Practical

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

Semester -3

Paper-1 (BMV 231 A) 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 & Tarana in Sudh Sarang Raga, Jai-jaiwanti, Malkauns Raga. They will also learn about difference between Margi Desi Sangeet and difference in detail about Raag Vargikaran.

Paper -2 (BMV 231 B) Practical

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-1 (BMV 241 A) 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 or Dhamar in Kedar Raga, Bhairavi Raga, Asawari 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 Natya Shastra and Sangeet Ratnakar and the contribution made towards music by Pt. Bhimsen Joshi and Pt. Jasraj.

Paper -2 (BMV 241 B) Practical

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 (BMV 351 A) 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, Miyan ki Malhar and Darbari and also origin and development of Indian Orchestra. 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.

Paper -2 (BMV 351 B) Practical

This is a practical paper where students will be required to demonstrate their skill in one Vilambit Khayal with Aalap and Taans in any one of the raga prescribed in the syllabus. They must have the ability to sing Drut Khayal Aalap and Taans in all the prescribed ragas. They must also be able to present one Thumri.

Semester - VI

Paper- 1 (BMV 361 A) 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 Bihag, Kamod, and Bhimplasi. The students will be made to carry out the historical survey of Indian Music from 17^{th} to 19^{th} Century and development of Indian Music during modern period.

Semester - VI

Paper- 2(BMV 361 B) 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.

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DEPARTMENT OF MASS COMMUNICATION

Course Outcomes Departments of Mathematics(Session 2018-19)

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

B.Sc. and MSc course aims to develop the ability to think critically, logically and analytically and hence used Mathematics in every day life.

It appreciate the usefulness , power and beauty of mathematic 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 .

During Msc course we came across ordianary differential equation ,real and complex analysis,topology,analytic number theory ,partial differential equations ,mechanics of solids, flued dynamics and algebraic coding theory. Apart from this the students learn scientific aspects of various subjects with the help of programing languages like C++ ,FOTRAN and MATLAB.

Semesters	Course	Code	Course Objective	Course Outcomes
1st	Algebra	CML 106	The course on algebra deals withs advance topics on matrices viz. rank , eigen values and homogeneous and non homogeneous systems, solution of cubic and bi – quadratic equations and de Moivre'stheorem.	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,	The student will be able to understand basic properties ofLimit, continuity and derivability of

			differentiability of functions and tracing of curves.	functions, series expansion indeterminate forms, 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 ordinarydifferential equations andLaplace Transforms deals withsome important concepts: Exact differential equations,Orthogonal trajectories, Lineardifferential equations withvariable & constant coefficients and solution of ordinarydifferential equations usingLaplace	The student will be able to understand basic properties ofdifferential equations, Orthogonal trajectories, Linear differentialequations. Apart from this the students will be able to solveODE by Transformation of the equation by changing thedependent variable/ the independent variable. Solution

			Transforms.	by operators of non-homogeneous linear differential equations. Reduction of order of a differential equation. Method ofvariations of parameters. Solution of Simultaneous DifferentialEquations and Total Differential Equations. Student will also be able to understand basic properties of Laplace and InverseLaplace 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	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.

			main objective this course aims to deliver.	
	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 using the numerical analysis software and computer facilities.	They can understand the theoretical & practical aspects of use of numerical analysis.
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	CML 506	The course aims to	After studying this

	Rings		provide an introduction to some of the most fundamental algebraic structures encountered in algebra and geometry groups and rings, subgroups, fields and some results related to it.	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.
	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 about vector spaces, sub spaces, homomorphism and	Students will know about vector spaces, Subspaces, and solve linear

			isomorphism also linear transformation , Eigen values and Eigen vectors, inner product space.	system and characterize the set of vector.
	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 conicoid 's, paraboloids, confocal conicoid and enveloping cone of conicoid.	The students will be able to learn about central conicoid 's, paraboloids, confocal conicoid and enveloping cone of conicoid.

Course Outcomes Departments of Mathematics of PG Programme are:

Semesters	Course	Code	Course Objective	Course Outcomes
1st	Algebra	MAL511	To familiarize students with some properties of groups and fields which have many applications in Coding Theory.	The student will be able to familiarize students with some properties of groups and fields which have many applications in Coding Theory.
	Real analysis	MAL512	To acquaint the students with the topics of Riemann-Stieltjes integral, sequence and series of functions, power series, functions of several variables and with the basic	The student will be able to understand students the topics of Riemann-Stieltjes integral, sequence and series of functions, power series, functions of several variables and with the basic concepts of measurability of sets.

			concepts of measurability of sets.	
	ORDINARY DIFFERENTIAL EQUATIONS -1	MAL514	To acquaint the students with existence and uniqueness of solutions of initial value problems, continuation of solutions, differential inequalities and with Sturm-Liouville boundary value problems.	The student will be able to understand existence and uniqueness of solutions of initial value problems, continuation of solutions, differential inequalities and with Sturm-Liouville boundary value problems.
	Complex analysis	MAL515	To familiarize with the analytic and meromorphic functions and their applications.	After completing this course students will able to understand the concept of analytic and meromorphic functions
	PROGRAMMING WITH FORTRAN (THEORY)	MAL516	To familiarize the students with the basics of computer and programming concepts of scientific language Fortran 90/95	They can understand the theoretical & practical aspects of use of Fortran.
2nd	Abstract Algebra	MAL 521	To familiarize students with some properties of rings and modules.	After completing this they will able to understand some properties of rings and modules

	MEASURE AND INTEGRATION THEORY	MAL522:	To acquaint the students with the topics of measurable functions, Lebesgue integral,	After studying this course the students will be able to understand with the topics of measurable functions, Lebesgue integral

	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.	Objectives: To fan with linear systen non-linear systems with some motiv calculus of variatio
	COMPLEX ANALYSIS-II	MAL525	Objectives: To familiarize the concepts of analytic continuation, properties of entire functions and conformal mapping.	
3rd	TOPOLOGY	MAL631	To familiarize the students with basics of a topological space, compactness, connectedness, separation axioms and product spaces..	

	PARTIAL DIFFERENTIAL EQUATIONS	MAL 632:	To familiarize the students with linear and non-linear partial differential equations in R n and various methods to obtain the solution of partial differential equations.	After studying this course students familiarize with linear and non-linear partial differential equations in R n and various methods to obtain the solution of partial differential equations.
	MECHANICS OF	MAL633:	To familiarize students with basics of	The students getting the

	SOLIDS-I		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	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
	ANALYTIC NUMBER THEORY	MAL635:	To study some important results of number theory	The students will get some important results of number theory
	FLUID MECHANICS	MAL636:	The objective of this paper is to make the students familiar with the flow properties of ideal fluid.	c flow properties of ideal fluid
	ADVANCED DISCRETE MATHEMATICS	MAL637:	To study some important results of discrete mathematics with their applications.	The students will familier some important results of discrete mathematics and their applications.
	DIFFERENCE EQUATIONS	MAL638:	To familiarize the students with difference equations, stability theory and asymptotic methods.	The students will get an idea about difference equations
4th	FUNCTIONAL ANALYSIS	MAL641:	To familiarize the students with the topics of Normed linear spaces, Conjugate spaces, Equivalent norms and Inner product spaces	The students will familiar with the topics of Normed linear spaces, Conjugate spaces, Equivalent norms and Inner product spaces
	DIFFERENTIAL GEOMETRY	MAL 642:	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	The students will be able to apply the concepts and techniques of differential geometry of curves and surfaces;

			surface; compute the mean and Gauss curvature of a surface; find geodesics on a given surface and its torsion.	understand the curvature and torsion of a space curve and how to analyze and solve problems, First and Second fundamental forms of a surface.
	MECHANICS OF SOLIDS-II	MAL643:	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.	The students will be able to understand Two-dimensional elastostistic, problems, fundamentals of Viscoelasticity, Torsion of cylindrical bars, propagation of waves in an elastic solids and variational methods
	INTEGRAL EQUATIONS	MAL644:	To familiarize the students with the concepts of integral equations and various methods for the solutions of different type of integral equations.	The students will be able to understand the concepts of integral equations and various methods for the solutions of different type of integral equations.
	ADVANCED FLUID MECHANICS	MAL645:	The objectives of this paper is to make familiar with the flow properties of real fluids and their applications in science and technology.	The students will familiar with the flow properties of real fluids and their applications in science and technology.

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DEPARTMENT OF SANSKRIT

Programme 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.

Specific Outcome:

BA-I (SANE 101, SANE 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 (Elective)

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 (Elective)

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.

BSc-II (Compulsory)

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.

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DEPARTMENT OF ENGLISH

Course Outcome: Department of English

Course Guidelines:

In today's world, the importance of the English language cannot be denied and ignored since it is the most common language spoken across the globe. English forms the backbone of all the teachings in the institution. The syllabus is designed to develop the overall personality of the students to choose their profession in any sphere of life. The study of English, as well as the connotation of education, is in the process of transition and metamorphosis in contemporary times. To grapple with the counter-currents of global and glocal: vocations based and value-based need of education, the syllabus selected is dynamic, eclectic and contemporary The selection of short stories like "Pigeons At Daybreak" by Anita Desai, and "The Child" by the writer of National repute Munshi Prem Chand and the other intellectual feast like the poems of Rabindra Nath Tagore, William Wordsworth present the complete package of the overall orientation of the students. This also outlines a canvas to all the three levels-International, National and Regional The regional writing provides a means of achieving the two-fold objective of introducing the students to their culture and to provide them with the confidence of owning the English language -a language that is still to a majority, something alien. With the aim of inculcating young minds with a holistic vision, the students are trained to think out of the box.

English as Compulsory Subject

Programme Outcome

- Students attain a good level of understanding on the sounds of English i.e. intonations and accurate word accent.
- The speaking skills will be improved with good conversation, interview, presentation and public speaking.
- The students possess good speaking skills with Role Play, Debate and Group Discussion.
- The students develop good writing skills with high quality vocabulary of spelling, punctuation and information transfer.

Courses

Course Code: ENGC- 101, 102, 201, 202, 301, 302

Prescribed texts

Chronicles of Time and *Remedial English Grammar for Foreign Students* by F.T. Wood.

The Pointed Vision: An Anthology of Short Stories and *Ideas Aglow.*

Sounds in Stillness: An Anthology of Poems and *A Text book of Grammar* by Inderjit Kumar and Sanjay Kumar.

Snapshots: An Anthology of One Act Plays and *A Text book of Grammar* by Inderjit Kumar and Sanjay Kumar.

The Eternal Muse, The Spectrum of Life: A Selection of Modern Essays and *A Text book of English Grammar and Composition* by SC Sharma et al.

Macbeth by William Shakespeare and *A Text book of English Grammar and Composition* by SC Sharma et al.

Course Outcome (Semester I to VI)

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 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.
3. Learning the English language provides ample career opportunities to students ranging from teaching jobs to media-related professions.

Functional English

Programme Outcome

This course sets out to equip the students with skills that will help them in establishing such private enterprise as personality development, consultancy services, human resource centres for service industry, small radio program production centres and print and graphic art centres; in seeking employment such as in the capacity of interviewer with T.V./radio/newspaper, news reader/script writer with T.V./radio/newspaper , commentator or announcer with T.V./radio, documentary narrator/script writer with T.V./radio, feature writer with newspaper/magazine, receptionist (with the Government such as Public Relations Department or with the private sector such as the tourism industry), secretary, desk officer/office assistant, sales representatives, etc.

List of Courses

Course Code: ENGE- 101, 102, 201, 202, 301, 302.

- Phonetics and Remedial English Grammar.
- Communicative and Writing Skills.
- Paper V and VI.

Course Outcome (Semester I to VI)

1. This course helps the students to practice the ways in which the 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.

English Honours

Programme Outcome

The course aims to widen the knowledge of the students about the history of the various Periods and Movements in English Literature (British and Indian literature in particular). It improves their prospects of acquiring admission in M.A. English in prestigious institutes. It also helps them to cope more effectively with the syllabus of postgraduate courses.

Courses

Course Code: ENGH- 101, 102, 103, 104, 201, 202, 203, 204, 205, 206, 301,302, 303, 304, 305, 306.

Topics covered under the course:

- Literature in English (1550-1660)
- Literature in English (1660-1750).
- Literature in English (1750-1830).
- Grammar & Contemporary English Usage.
- Literature in English (1830-1900) Paper.
- Modern British Literature.
- Indian Writing in English.
- Modern World Literature.

Course Outcome

1. The 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 the ability to read between the lines.

MA English

Programme Outcome

- Helps the students learn the evolution of language and the politics enhances critical thinking of students
- Cultivates language skills of students by introducing them to structures of language through a wide variety of literary works.
- Hones the writing skills of students and they learn the conventions of academic writing
- Instils a critical perspective with which students approach the disciplines
- Introduces different literary periods and trends of each of these periods.
- Introduces works written by diverse sections of societies (gender, racial and ethnic minorities) and makes the students give critical responses from different perspectives.

List of Courses

Course Code: ENG-101, 102, 103, 104, 105, 201, 202, 203, 204, 205, 301, 302, 303, 304, 305, 401, 402, 403, 404, 405.

Topic covered under the course:

- Literature in English (1550-1660)
- Literature in English (1660-1798)
- Literature in English (1798-1914)
- Literature in English (1914-2000)
- Study of a Genre
- Critical Theory
- American Literature
- Indian Writing in English

- English Language
- Literature and Gender

Course Outcome

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

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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।

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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।

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DEPARTMENT OF ECONOMICS

BACHELOR OF ARTS 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.

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 ecologyeconomics 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 environment

7- To provide learning experience in students that instills deep interest in economic science for the benefit of society.

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 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 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 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 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 highpowered money in economy

401.3 Have knowledge about fluctuations in value of money: inflationCauses, 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 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- HarrodDomar'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 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.

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DEPARTMENT OF COMMERCE

PROGRAMME OUTCOMES, PROGRAM SPECIFIC OUTCOMES, COURSE OUTCOMES:

Programme: B.Com and M.Com

Programme Outcomes:

- After completing Bachelor's in Commerce (B.Com.) and Master's in commerce (M.Com.) program, students would gain a thorough understanding in the fundamentals of Commerce and Finance.
- To enhance capability of the students to make decisions at personal and professional level.
- 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:

Student 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 utilization.

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 analyses ad provide recommendations to improve the operations of organization and maximize the profitability through application of various cost accounting techniques.

Core Course Code: BC-502

Core Course Title: Entrepreneurship Development

Course Outcomes

It helps the students to prepare for an uncertain future. Entrepreneurship-focused programs teach students crucial life skills that will help them navigate this uncertain future. These skills

include problem-solving, teamwork, empathy, as well as learning to accept failure as a part of the growth process.

Core Course Code: BC-503

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.

Code: BC-504

Core Course Title: Company Law ii

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-505

Core Course Title: Material Management

Course Outcomes:

The purpose of this subject for students to provide an unbroken chain of components for production to manufacture goods on time for customers. The materials department is charged with releasing materials to a supply base, ensuring that the materials are delivered on time to the company using the correct carrier.

Core Course Code: BC-508

Core Course Title: Industrial Marketing

Course Outcomes:

This is an intensive marketing course that focuses on developing a managerial
Mindset capable of designing business solutions that tackle real-life business
Challenges across different industries and sectors. Industrial and Service Marketing explores key issues in industrial marketing (as opposed to consumer marketing), service marketing (both B2B and B2C marketing), service and industrial product strategy, service design and delivery, and successful ways to manage them, as demonstrated by world-class companies. The main objective of the Industrial Marketing course is to avoid staying on the level of general concepts and ideas and to provide in-depth understanding of the critical details of industrial marketing management and consumer service marketing. This course aims to introduce students to the practical tools they will be able to apply in real-life situations..

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, analyses 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: 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-604

Core Course Title: Security Market Operations

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 analyses the process of raising funds from international market.

Core Course Code: BC-605

Core Course Title: International Marketing

Course Outcomes:

Students will be able to develop an understanding of major issues related to international marketing. It developed skills in researching and analyzing trends in global markets and in modern marketing practice. Also be able to assess an organization's ability to enter and compete in international markets.

Core Course Code: BC-608

Core Course Title: Retail Management

Course Outcomes:

To familiarize students with the decisions involved in running a retail firm and the concepts and principles for making those decisions. While the course focuses on the retail industry including retailers of consumer services, the content of the course is useful for students interested in working for companies that interface with retailers such as manufacturers of consumer products or for students with a general management or entrepreneurial interest.

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 in developing 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 behavior, 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 globalisation 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 students about 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 criticalities 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 The Financial 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

Course Outcomes:

This course will let the students know about Introduction to Rural Marketing, Definitions of Rural Marketing, Meaning and Scope of Rural Marketing, Features of Rural Marketing, Rural Environment, Need for Exploring the Rural Markets, Factors Contributing to the Growth of Rural Market, Constraints in Rural Marketing, Marketing Communication in Rural Markets, New Dimensions of Indian Rural Marketing, Organization and Working of Rural Market, Rural Consumers and their Behaviors', Importance of Rural Marketing and Opportunities of Rural Market in India.

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BACHELOR OF BUSINESS ADMINISTRATIONS (B.B.A.)

Program Outcomes

Under graduate students will get:

- Understanding comprehensive approach, wide range of concept of business.
- Developing thinking capacities (basically and systematically)
- Internal and mutual ability advancement..
- Understanding and making social obligation and affectability.
- Ethical and maintainable development of business.
- Several hierarchical practices expound and exhibit affectability to moral, social and manageability 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 program has been designed to prepare graduates for attaining the following specific outcomes:

- Analyze business ideas and its execution.
- Understanding utilitarian zones in business and extension.
- Build capacity to receive rehearses that helps in authoritative advantages.
- Understanding the monetary issues and supportability of business.
- Studying and understanding of crude information that helps in making decisions
- Enhancing the relational abilities (verbal and non-verbal).
- Developing basic reasoning and authority characteristics.
- 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 capability in fundamental ideas, shows and comprehension of the business cycle. Comprehend the types of business association and Understanding the morals in business.
2	**I**	**Business Mathematics**	Targets outfitting the understudies with abroad – based information on arithmetic with accentuation 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 different PC essentials subsequent to going through this educational plan and comprehend the force of the product instruments and applications in business.
5	**I**	**Business Communication**	Upgrading the abilities by means of composed just as oral correspondence through useful direct of this course and furthermore to cause them to comprehend the standards and methods of business correspondence.
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	**I**	**Environmental Studies**	Understanding the basics, nature and scope of environment.
9	**II**	**Principles of Management**	Jobs and obligations related with administrative capacities, distinguishing the key givers and their commitments in the advancement of the executives thought and looking at different methodologies in administration for critical thinking**.**
10	**II**	**Macro – Economic Analysis and Policy**	Information on how the National Income is determined in India and how Indian Economy works at Macro level.
11	**II**	**Company Accounts**	Understanding the share capital exchange, giving of debentures and getting ready last records.
12	**II**	**Computer application in Management**	To acquaint them with the PC and its applications in the pertinent fields and furthermore to make them mindful of other related papers of IT.
13	**II**	**Organizational Behavior**	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**	A knowledge into the different parts of Cost bookkeeping like idea, material control, work cost control and

			strategies for costing
17	**III**	**Marketing Management**	Assess the meaning of advertising, examine the connections between promoting the executives and the political, financial, lawful and social approaches and its effect on business, Identify the job and meaning of different components of showcasing blend, assess the job and pertinence of advertising association in current promoting conditions.
18	**III**	**Capital Market**	Clarifying the job of capital market in Indian Financial System and its administrative climate.
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**	Clarifying bookkeeping proclamations and investigate the budget report with the assistance of proportion examination, applying the idea of time worth of cash for any speculation choice, evaluating the capital design of a firm and express its effect on

			company's benefit.
23	**IV**	**Human Resource Management**	Comprehension of hypothetical ideas and structure needed for powerful Human Resource Management, building up an outline on different capacities and cycles of human asset the board and recognizing the human asset needs of an association and plan likewise.
24	**IV**	**Business Research Methodology**	Portraying the exploration interaction and rundown the qualities of different sorts of examination , forming Research Problem, Research Objectives and Hypothesis from a given exploration issue and different examination plans and strategies for information assortment.
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**	Illuminate about buying, material administration, material quality and stores the board.
29	**V**	**Company Law**	Become mindful of legitimate parts of Company law, comprehend organization contracts and become certain in that, manage corporate agreements unhesitatingly and turn out to be more positive about executing

			business contracts
30	**V**	**Management accounting**	Investigating ramifications of cost in administrative choices, getting ready various financial plans, Understand Standard costing and examination of deviation, comprehend Break Even idea and strategies and methods cost the board
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**	Rudiments ideas of assessment, pay from compensation, pay from capital increase and gross absolute wages.
35	**VI**	**Entrepreneurship development**	Comprehend the enterprising social and mechanical development to set them up to set up and deal with their own little units.
36	**VI**	**Foundations of international business**	Understanding the worldwide elements of the executives, unfamiliar market passage modes and bookkeeping contrasts across societies.
37	**VI**	**Principles of banking**	Exhibit banking law and its relationship to banks and clients. Participate in basic investigation of the act of banking law from a scope of

			viewpoints.
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

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