B.Sc. BOTANY AND BIOTECHNOLOGY (Career Related)

PROGRAMME SPECIFIC OUTCOMES (PSOs)

- The career related first degree programme with Botany as core subject and Biotechnologyas Vocational subject is designed to develop a scientific attitude and an interest towards the modern areas of biotechnology in particular and life science in general.
- The students are expected to acquire knowledge of plant and related subjects so as to understand natural phenomenon, manipulation of nature and environment in the benefit of human beings.
- It is aimed to get an aptitude in Biotechnology without losing the importance of basic science such as Botany.
- It will help the students to become critical and curious in their outlook.
- The courses are designed to impart the essential basics in Botany, Zoology, Biochemistry and Biotechnology.
- The various courses in the programme is aimed to develop proficiency in the theory as well as practical experiments, common equipments, laboratory, along with the collection and interpretation and presentation of scientific data in proper manner.
- The students will be enriched with the latest developments in the field of Information technology, Biotechnology, and other related fields of research and development.
- In addition to this, students will be equipped with knowledge in the modern areas of biotechnology and its application in medical science, agriculture, industry, proteomics, genomics, metabolomics, bioinformatics, nanobiotechnology etc.
- Apart from understanding biotechnology and its power in developing the nation, it will create awareness about biotechnology and will help in eliminating public fear about the contribution of biotechnology and confusion on GM crops, GM foods and transgenic organisms.
- The students who complete this programme can undergo higher studies or jobs in the fields of Botany as well as Biotechnology.
- Students, who pursue this programme and pass out successfully, will surely have an urge to continue higher studies in Biotechnology and contribute significantly in itsdevelopment.

B.Sc Mathematics

Programme Specific Outcomes

- **PSO1 :** Provide students with a thorough knowledge of fundamental Mathematicalfacts
- **PSO2 :** To enhance the students reasoning, analytical and problem-solving skills
- **PSO3 :** Adequately prepare students to pursue further studies in Mathematics andallied areas
- **PSO4 :** Instill in the students the spirit of doing research in Pure and AppliedMathematics and allied areas
- **PSO5 :** To prepare graduates with the capabilities to teach the Mathematicscurriculum at the higher secondary level
- **PSO6 :** To encourage students to uphold scientific integrity and objectivity inprofessional endeavors

COMPLIMENTARY COURSE IN MATHEMATICS FOR FDP COMPUTER SCIENCE

PSO1	The major aim of this course is to develop a concrete idea of essential mathematical theories, techniques and tools.
PSO2	Provide a systematic understand of the basic tools and techniques of Calculus and Number Theory.
PSO3	Develop proficiency in mathematical and predicate logic, set theory, group theory and related topics necessary for computer science.
PSO4	Enable the students to apply the theories, tools and techniques learned in this course, in the problems encountering in other courses of the FDP.

PSO2 - To enable students to acquire the necessary skills for analyzing basic economic issues at the micro and macro levels.

PSO 3- To acquaint the students with the essential mathematical and statistical methods and tools to be applied in the analytical aspects of Economics.

PSO 4- To train the students in machine learning in R and basic data analytics using R.
PSO 5- To apprise the learners about the fiscal framework of the Government for assessing its performance.
PSO 6- To expose the students to the origin and development of money and modern banking.
PSO 7- To acquaint the students with the basic methodology of research.
PSO 8- To familiarize the students with the basic concepts and functioning of the financial markets and services.
PSO 9- To provide the students with an understanding of the basic international trade and financial system.
PSO 10 -To appraise the students about the important issues in economic development and the tools for measuring economic growth and development

PROGRAMME SPECIFIC OUTCOMES (B.A. ECONOMICS)

By the end of the second semester,
PSO1: Students will be able to improve their economic vocabulary- the knowledge ofthe terms and concepts commonly used in discussions of economic issues.
PSO2: Students will be able to demonstrate the ability to employ 'the economic wayof thinking'.

By the end of the fourth semester,
PSO3: Students will learn to apply economic theories and concepts to contemporarysocial issues, as well as analysis of policies.
PSO4: Students will be able to formulate informed opinions on policy issues andrecognize the validity of opposing viewpoints.

By the end of the sixth semester,
PSO5: Students will be able to understand the impact of government policies and will beable to assess the consequences of the policies on the parties involved.
PSO6: Students will be able to demonstrate quantitative reasoning skills.
PSO7: Student develops an awareness of career choices and the option for higher studies.

Programme Specific Outcomes of FDP Programme in Commerce

FDP Programme in Commerce aims at:

PSO1. Providing a strong foundation level understanding of the functioning of business organizations, commercial transactions and of various specialized operations by offering a comprehensive curriculum.

PSO2. Developing necessary professional knowledge and skills in Accounting,

Finance,Cooperation Computer application, etc. by adopting learner centered pedagogical practices.

PSO3. Enhancing employability of students to take up challenging job assignments invarious fields of business.

PSO4. Nurturing in students intellectual, personal, interpersonal and societal skills with abent on Holistic Education.

B.Com Accounts and Audit

Programme Specific Outcomes :

FDP Programme in Commerce (Accounts and Audit) aims at:

PSO1. Providing a strong foundation level understanding of the functioning of business organizations, commercial transactions and of various specialized operations by offering a comprehensive curriculum.

PSO2. Developing necessary professional knowledge and skills in Accounting, Finance, Taxation, etc. by adopting learner centered pedagogical practices.

PSO3. Enhancing employability of students to take up challenging job assignments in various fields of business specifically as chartered accountants.

PSO4. Nurturing in students intellectual, personal, interpersonal and societal skills with a bent on Holistic Education.

B A Journalism and Mass Communication

- acquire fundamental knowledge of Mass communication and Journalism and related study areas
- be competent enough to undertake professional job as per demands and requirements of media industry
- become ethically committed media professionals and entrepreneurs adhering to human values of diverse cultures
- be able to think critically, act in an appropriate manner and achieve the desired results
- acquire primary research skills, understand the importance of innovation, entrepreneurship, and incubation abilities
- be able to enhance the ability of leadership
- understand the importance of cooperation and teamwork.

BA English Language and Literature

A comprehensive understanding of the discipline of literary studies

- Realize the divergent and plural voices that come in to the making of the corpus of literary studies.
- Understand literature as one of the many arts that seeks literary expression and its close connection with other art forms like painting, music, dance, movie and so on down the ages.
- Imbibe the importance of multidisciplinary approach to understand the nuances of literary expressions.
- Understand the specific socio-cultural backdrop of the formation of literary representations.
- Form an awareness of the multiplicities of such socio-cultural realities that shape literary representations and to critique the inherent hegemony.
- The ability to trace the development of the English language from the early writings to its present day use in specific contexts.
- Address the requirements of the language use in a globalized context
- Ensure the importance of study of the English language in relation to the study of language and literature of the mother tongue.
- Have improved competence in translation and to view the same not only as a tool for cultural transmission but also as skill acquisition.
- Comprehended the current modes of writings – that which encompasses the issues related to race, gender, ethnicity, climate change etc. and realize the role of literature in inculcating social sensitiveness
- The competence to identify the literary voices of dissent from diverse parts of the globe and to reflect on the popular culture and literature.
- A basic knowledge of research methodology and other areas related to the faculty of research.
- Imbibe a research oriented approach to the study of humanities in connection with the basic understanding of social sciences to initiate a multidisciplinary approach of study.
- Contribute to the realm of knowledge production with an increased intellectual, creative, critical and multidisciplinary capability

BA ENGLISH AND COMMUNICATIVE ENGLISH

- Bring in a harmonious blend of sensitive knowledge production and skill development
- Simultaneous rendering of language use and literary manifestations for a holistic approach towards education.
- Develop knowledge competence in select thrust areas that would provide directions to the students in terms of research as well as career options
- Recognize the varied possibilities multiple disciplines offer in terms of knowledge creation and skill acquisition.
- Make the students aware of the formation of knowledge and the politics of the same.
- Comprehend the current modes of writings – that which encompasses the issues related to power, race, caste, gender, ethnicity, climate change etc. and realize the role of literature in

inculcating social sensitiveness

- Equip the students to identify and resist the socio-cultural hegemonies and their literary representations through narratives of pluralities.
- Contribute to the realm of knowledge production with an increased intellectual, creative, critical and multidisciplinary capability.
- Enhance the skill attributes in the curriculum and help the students with the same in everyday praxis. PO 10: Focus on specific vocational skills
- Address the requirements of the language use in a globalized context.
- Practice oriented approach for knowledge creation through skill enhancement P
- Put into practice the theoretical, practical and performative elements within the learning of language and literature and connect it to the everyday realities of life and living
- Equip the students to enhance their theoretical and practical wisdom to comprehend the regional requirements and contribute to the development of the society and
- Imbibe a research-oriented approach to the study of humanities in connection with the basic understanding of social sciences to initiate a multidisciplinary approach of study.

BSC BIOTECHNOLOGY

- The career related first degree programme with Botany as core subject and Biotechnologyas Vocational subject is designed to develop a scientific attitude and an interest towards the modern areas of biotechnology in particular and life science in general.
- The students are expected to acquire knowledge of plant and related subjects so as to understand natural phenomenon, manipulation of nature and environment in the benefit of human beings.
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- Students, who pursue this programme and pass out successfully, will surely have an urge to continue higher studies in Biotechnology and contribute significantly in itsdevelopment.

BSC CHEMISTRY

- Develop scientific outlook scientific attitude and scientific temper
- Develop skill in experimenting, analysing and interpreting data
- Develop research attitude and adopt scientific method of identifying, analysing and solving research problems in an innovative way
- Apply physical and mathematical theories and principles in the context of chemical science
- Use chemistry related soft wares for drawing structure and plotting graphs
- Use instruments- potentiometer, conductometer, pH-meter and colorimeter.
- Acquire skill in safe handling of chemicals including hazardous materials.
- Identify the ingredients in household chemicals, use them in a critical way
- Predict analytical procedures, compare experimental, theoretical, and graphical methods of analysis
- Predict reaction mechanism in organic reactions
- Understand the terms, concepts, methods, principles, and experimental techniques of physical, organic, inorganic, and analytical chemistry
- Develop critical thinking and adopt healthier attitudes towards individual, community and culture through the course of Chemistry
- Become cautious about environmental aspects and impact of chemicals in soil, water and air and adopt eco-friendly approach in all frontiers of life
- Become responsible in consumption of natural resources and adopt measures for sustainable development.
- Visit Chemical factories and industries with scientific curiosity
- Develop writing skills and presentation skills using audio visual aids
- Compare and share knowledge in an interdisciplinary manner
- Inculcate spirit of originality, novelty, and necessity in scientific research
- Contribute to the academic and industrial requirements of the society
- Get motivated to higher studies - PG Degree in different branches of Chemistry, B.Ed Degree in Physical Science, and job opportunities in industrial and non-industrial sectors
- Adopt safer life skills in a human friendly and eco-friendly way

B.Sc Physics

- Quality education: Education and training of best quality at the undergraduate level that nurture graduates of the caliber sought by IT industries and public service, as well as academicians, teachers and researchers of global standards.
- Skill development: Provide an intellectually stimulating environment in which the students have the opportunity to develop their knowledge and skills to the best of their potential.
- Critical thinking capacity: Ability to involve in independent and reflective thinking in order to understand logic connections between ideas and mathematical formalism of theoretical and applied physics

- Operational communication skill: Expansion of communication skills for effectively transmitting and receiving information that emphases on acquiring knowledge, problem solving skill, improving curiosity particularly in the physical concepts and related mathematical methods for superior employability
- Societal and national perception: Attain consciousness towards societal issues, human values and professional and disseminating scientific knowledge wherever required and also to keep scientific temper in the society to contribute towards human scientific development
- Multidisciplinary approach: Integrating various disciplines and specialized areas to cross border and redefine problems in order to solve interdisciplinary problems that require simultaneous implementation of concepts from different branches of physics and other related areas
- Depth of knowledge: Acquiring information at a higher level to develop skill and job potential leading to the development of the nation on global standards
- Sustained learning practice: Understanding the requirement of being a continued learner for self-enrichment, professional development and operative partaking in social life in the modern world.

BSC PHYSICS (CORE) WITH MATHEMATICS AND MACHINE LEARNING

- Upon completion of B.Sc. Physics Degree programme, the graduates will be able to
- Conceptual understanding of Physics and its practical applications and scope in the present world.
- Analysing the theory part with practical experiments, interpretation of experimental results, finding out errors, suggestions to improve the errors.
- Develop and construct practical model systems from their conceptual knowledge.
- Distinguish Microscopic and Macroscopic Systems.
- Acquire conceptual understanding of Physics to General real-world situations.
- Integrate the Quantum Mechanics to understand the fundamentals of other branches of physics such as Vibrational Spectroscopy
- Understand possible atomic and molecular energy levels and transitions and predict the existence of new elements
- Develope an idea regarding x-rays resonance spectroscopic techniques
- Students will use the knowledge of electronics and communication to analyze the contemporary communication systems and to design the system.
- Apply the Langrangian and Hamiltonian formalisms to solve various
- dynamical problems which involve constraints.

Students will use the knowledge of Mechanics to describe the motion of objects in different force fields.

M.Sc Zoology

- Obtain in-depth knowledge on different branches of Zoology and thereby develop inquisitiveness to explore advanced courses of learning and research.
- Achieve employability in careers related to teaching and research that require postgraduation in Zoology.
- Develop the ability to identify local fauna in relation to their environment and the need for conservation of the environment.
- Acquire knowledge and skill to handle analytical equipments which will be useful for further research.
- Develop innovative ideas to initiate unique start-ups in the realm of life science.

M.Sc Chemistry

- Develop a better understanding of the current chemical principles, methods
- and theories with the ability to critically analyse at an advanced level.
- Acquire solid knowledge of classical and modern experimental techniques and interpretation of results; thereby acquire the ability to plan and carry out independent projects.
- Develop the qualities of time management and organization, planning and executing experiments.
- Have a good level of awareness of the problems associated with health, safety and environment.
- Understand how chemistry relates to the real world and be able to communicate their understanding of chemical principles to a lay audience and as well apply the knowledge when situation warrants.
- Learn to search scientific literature and databases, extract and retrieve the required information and apply it in an appropriate manner.
- Demonstrate proficiency in undertaking individual and/or team-based laboratory investigations using appropriate apparatus and safe laboratory practices.
- Develop analytical solutions to a diversity of chemical problems identified from application contexts; critically analyse and interpret qualitative & quantitative chemical information's.
- Set the scene to make use of the wide range of career options open to chemistry graduates.

M.Sc Physics

- Programme Outcomes
- Critical thinking capacity: Ability to involve in independent and reflective thinking in order to understand logic connections between ideas and mathematical formalism of theoretical and applied physics
- Operational communication skill: Expansion of communication skills for effectively transmitting and receiving information that emphases on acquiring knowledge, problem solving skill, improving curiosity particularly in the physical concepts and related mathematical methods for superior employability
- Societal and national perception: Attain consciousness towards societal issues, human values and professional and disseminating scientific knowledge wherever required and also to keep scientific temper in the society to contribute towards human scientific development
- Multidisciplinary approach: Integrating various disciplines and specialized areas to cross border and redefine problems in order to solve interdisciplinary problems that require simultaneous implementation of concepts from different branches of physics and other related areas

- Depth of knowledge: Acquiring information at a higher level to develop skill and job potential leading to the development of the nation on global standards
- Sustained learning practice: Understanding the requirement of being a continued learner for self-enrichment, professional development and operative partaking in social life in the modern world.

M.Com (Finance)

PSO 1: Ready for employment in functional areas like accounting, taxation, banking, securities markets etc.

PSO 2: Able to pursue their career in teaching and research.

PSO 3: More equipped to start entrepreneurial activities.

Master of Tourism and Travel Management (MTTM)

PSO1. Knowledge and insight into tourism and hospitality on an advanced level.
PSO2. Extended knowledge on world travel geography.
PSO3. Skill in preparing domestic and international tour itineraries.
PSO4. Able to prepare and market tour packages effectively.
PSO5. Thorough knowledge about ticketing through GDS.
PSO6. Ability to handle guests in hospitality and travel sector.
PSO7. Able to manage human resources in an organization.
PSO8. Knowledge in airline and airport operations

PROGRAMME OUTCOMES (B.A. DEGREE PROGRAMME)

PO1: Students will be able to possess a broad, liberal arts foundation and an understanding of how developments in social and intellectual history shape and affect human values and institutions.
PO2: Students will get an idea of the range of methods by which the social sciences studyindividuals, cultures and societies.
PO3: Students will be able to analyze human behavior, problems or situations from socialscience, cross-cultural and global perspectives.
PO4: Students will be able to evaluate how theories and models within the social scienceshave been established and maintained through systems of power and oppression.
PO5: Help the students to apply analytical skills to social phenomena in order to understandhuman behavior.
PO6: Enable the students to apply knowledge and skills to contemporary problems and issues.

BSC BIOTECHNOLOGY

- This first degree programme will impart knowledge of science which is the basic outcome of education.
- This programme will help to develop scientific attitude to make the students open minded, critical and curious.
- The programme is aimed to develop skill in practical work, experiments and laboratory materials and equipments along with the collection and interpretation of scientific data to contribute the science.
- The students are expected to understand scientific terms, concepts, facts, phenomenon and their relationships.
- This programme will help to make the students aware of natural resources and environment.
- This programme will provide practical experience to the students as a part of the course to develop scientific ability to work in the field of research and other fields of their own interest and to make them fit for society.
- The programme is aimed to develop ability for the application of the acquired knowledge to improve agriculture and other related fields to make the country self-reliant and sufficient.
- This programme will help the students to understand and appreciate the role of biology in societal issues, such as the environment and biological resources, biodiversity, ethics and human health and diseases.
- This programme will create enthusiasm to understand more about the beautiful planet Earth and to give awareness to the public the need to protect the planet from all kinds of exploitation.
- The programme is aimed to keep the scientific temper which the student acquired from school level and to develop a research culture.

MASTER OF SCIENCE IN ZOOLOGY

- Develop in-depth knowledge in the core subject and related branches which help in interdisciplinary learning and research.
- Develop scientific excellence and skill to apply the knowledge to design experiments, analyze and interpret data to reach an effective conclusion.
- Develop logical thinking and analytical and integrative problem-solving ability.
- Achieve competency for national and state level competitive exams (eg. CSIR- NET, SET) and to write research proposal for grants.
- Develop innovative ideas to initiate unique start-ups in the realm of life science.
- Recognize the need and develop the ability for life long and independent learning.

M.Com (Finance)

PO 1: Basic knowledge that includes the understanding of recent developments.

PO 2: Cognitive skills to investigate analyse and synthesise information, problems, concepts and theories.

PO 3: Creative skills to investigate analyse and synthesise complex information, problems, concepts and theories.

PO 4: Technical skills to design, use and evaluate research and research methods.

PO 5: Produce and defend an original significant contribution to knowledge

PO 6: Demonstrate mastery of subject material.

PO 7: Ability to work both independently and in a group.

PO 8: Qualify for Ph.D. Programmes.

PO 9: Qualify for teaching at undergraduate and postgraduate level.

Master of Tourism and Travel Management (MTTM)

Through curriculum and assessment mechanisms defined by the program, graduate students will be able to attain:

PO1. An in-depth understanding of the nature and inter-relationship of the components of tourism industry

PO2. Acquire practical skills in all the major arenas of tourism and hospitality industry

PO3. Ability to work in competitive, dynamic and diverse work atmospheres.

PO4. Competent to manage the business in tourism and hospitality industry.

PO5. Ability to work both independently and in a group.

PO6. Qualify for PhD programmes

PO7. Qualify for teaching at undergraduate and postgraduate level

MAR IVANIOS COLLEGE (AUTONOMOUS)

Affiliated to the University of Kerala,
Thiruvananthapuram
Kerala

SCHEME AND SYLLABUS FOR THE FIRST DEGREE PROGRAMME
BACHELOR OF SCIENCE IN MATHEMATICS

(With effect from 2021 Admissions)

Approved by the Board of Studies in
Mathematics and Statistics

FIRST DEGREE PROGRAMME IN MATHEMATICS (CORE)

SEMESTER - 1

AUMM 141: Methods of Mathematics

Course Outcomes:

CO1: Gaining practice in solving problems in limits.
CO2: Finding the rate of changes through differentiation method.
CO3: Finding the area under a curve through the integration method.

SEMESTER - 2

AUMM 221: Foundations of Mathematics

Course Outcomes:

CO1 : Review of concepts of sets and functions.

CO2 : Understand the way in which a mathematician formally makes statements and proves or disproves it.

CO3 : Review of vector calculus.

SEMESTER - 3

AUMM 341: Elementary Number Theory and Calculus – I

Course Outcomes:

CO1: Understand fundamental facts in elementary number theory.
CO2: Understand the methods of calculus of vector valued functions.
CO3: Evaluation of multiple integrals and finding its applications

Linear Diophantine Equations and existence of solutions, Euler's Method for solving LDE's.

Defining congruence classes, complete set of residues, modulus exponentiation, finding reminder of big numbers using modular arithmetic, cancellation laws in modular arithmetic.

SEMESTER – 4

AUMM 441: Elementary Number Theory and Calculus – II

Course Outcomes:

- **CO1:** Study abstract algebraic structures.
- **CO2:** Study the fundamental facts in elementary number theory.
- **CO3:** Learn to evaluate multiple integrals and get a knowledge on calculus of vector valued functions.

SEMESTER - 5

AUMM 541: Real Analysis – I

Course Outcomes:

CO1 : **S**tudying the basis of the metric space structure of R so as to serve as a stepping stone into the idea of abstract topological spaces.

CO2 : Know the realization of the set R of real numbers as a field.

CO3 : Acquire skill in using plotting software such as Geogebra to plot various functions.

SEMESTER - 5

AUMM 542: Complex Analysis – I

Course Outcomes:

CO1: To review the basic properties of complex numbers

CO2: To get a better knowledge on analytic functions

CO3: Extend knowledge of the notions of differentiation and integration of complex functions.

SEMESTER - 5

AUMM 543: Abstract Algebra – Group Theory

Course Outcomes:

CO1: To get a very strong foundation in the theory of groups.

CO2: To understand the classic result of Cayley on finite groups.

CO3: Acquire the ability to classify groups based on the fundamental theorem of Isomorphism for Finitely Generated Abelian Groups.

SEMESTER - 5

AUMM 544: Differential Equations

Course Outcomes:

CO1: Study how differential equations arise in various physical problems.

CO2: Study some methods to solve first order differential equations and second order linear differential equations.

CO3: Study the applications of differential equations in various areas.

SEMESTER - 5

AUMM 54PI: Computer Programming – I

(Practical Examination only)

Course Outcomes:

CO1: Enable students to typeset the project report which is a compulsory requirement for finishing their undergraduate mathematics programme successfully.

CO2: Enable students to acquire a basic programming skill.

CO3: To learn the C programming language.

SEMESTER - 5

AUMM 581.a: Actuarial Science (Open Course)

Course Outcomes:

CO1: Study the concept of Risk.

CO2: Learn the role of statistics in Insurance.

CO3: Understand Insurance business in India.

SEMESTER - 5

AUMM 581.b: Business Mathematics (Open Course)

Course Outcomes:

CO1: Basic Mathematics of Finance.

CO2: Differentiation and their applications to Business and Economics.

CO3: Methods of construction of index numbers.

SEMESTER – 5

AUMM 581.c: Operations Research (Open Course)

Course Outcomes:

- **CO1:** Formulation and solution of Linear Programming models
- **CO2:** Solution of Transportation problems and Assignment problems
- **CO3:** Project management using PERT and CPM

SEMESTER – 5

AUMM 581.d: Basic Mathematics (Open Course)

Course Outcomes:

- **CO1:** Getting a working knowledge in basic arithmetic of whole numbers, fractions and decimals.
- **CO2:** Understanding of ratios, proportions, percent and the relation among them.
- **CO3:** Understanding basic Statistics.

SEMESTER - 5

Project Preparation

Course Outcomes:

- **CO1:** Making the students understand various concepts behind undertaking a project
- **CO2:** To study the way of preparing the final report.
- **CO3:** Make the students able to choose and prepare topics in their own and they should understand the layout of a project report.

SEMESTER - 6

AUMM 641: Real Analysis-II

Course Outcomes:

- **CO1:** Get better knowledge of continuity of real valued functions.
- **CO2:** Get better knowledge of differentiability of real valued functions.
- **CO3:** Get better knowledge of Riemann integrability of real valued functions.

SEMESTER - 6

AUMM 642: Complex Analysis- II

Course Outcomes:

- **CO1:** To study the basic properties of analytic functions.
- **CO2:** Study of residues and applications of residue theory
- **CO3:** Learn about conformal mappings and its significance

SEMESTER - 6

AUMM 643: Abstract Algebra – Ring Theory

Course Outcomes:

- **CO1 :** Getting the definition and properties of integral domains, fields, and the characteristic of rings.

- **CO2 :** Understanding irreducibility and reducibility and the unique factorization o polynomials over special rings
- **CO3 :** Study Unique factorization domains and the Euclidean domains.

SEMESTER-6

AUMM 644: Linear Algebra

Course Outcomes:

- **CO1:** To study the basics of linear algebra
- **CO2:** To study matrix theory with emphasis on their geometrical aspects.
- **CO3:** To use the methods studied for solving practical problems.

SEMESTER - 6

AUMM 645: Graph Theory

Course Outcomes:

- **CO1:** To build an awareness of some of the fundamental concepts in Graph Theory.
- **CO2:** To develop better understanding of the subject so as to use these ideas skillfully in solving real world problems.

SEMESTER – 6

AUMM 691.a: Integral Transforms (Elective)

Course Outcomes:

- **CO1:** Learn Differentiation and Integration of Transforms
- **CO2:** Study applications of Fourier Integrals
- **CO3:** Study Fourier Transform and its inverse; and linearity

SEMESTER – 6

AUMM 691.b: Linear Programming with SageMath (Elective)

Course Outcomes:

- **CO1 :** To provide a strong introduction to various type of problems that can be solved via linear programming.
- **CO2 :** Workout examples on planning, transportation, assignment, workforce scheduling, portfolio optimization, Minimum Cost Flow Problem, Maximum Flow Problem.
- **CO3 :** Understand geometry of optimal solutions and geometric characterization of optimality.

SEMESTER - 6

AUMM 691.c: Numerical Methods and Hands - on SageMath (Elective)

Course Outcomes:

CO1 : Get introduced to Numerical analysis with particular emphasize to finding approximate solutions to problems.

CO2 : Study numerical methods in Linear Algebra

CO3 : Acquiring Hands-on experiences with SageMath

Max Marks: 80	Credits: 2

Course Outcomes:

- **CO1:** Get an overview of fuzzy sets
- **CO2:** Learn fuzzy arithmetic.
- **CO3:** Get the notion of fuzzy relations.

SEMESTER - 6

AUMM 64PI: Computer Programming - II (Elective)
(Practical Examination only)

Course Outcomes:

- **CO1 :** Enable students to see how the computational techniques they have learned in the previous semesters can be put into action with the help of software so as to reduce human effort.
- **CO2 :** To learn Python which is a programming language that works more quickly and integrate with mathematics more effectively.
- **CO3 :** To learn to use SageMath for further computations in their own.

FDP B.Sc. CHEMISTRY (Complementary)			Instructional h/week	Credit	ESE duration	CE %	ESE %
					(h)		
Semester	**Paper Code**	**Title of Course**					
1.	AUMM 131.2b	Differential Calculus and Sequence and Series	4	3	3	20	80
2.	AUMM 231.2b	Integral Calculus and Vector Differentiation	4	3	3	20	80
3.	AUMM 331.2b	Linear Algebra, Probability Theory & Numerical Solutions	5	4	3	20	80
4.	AUMM 431.2b	Differential Equations, Vector Calculus, and Abstract Algebra	5	4	3	20	80

SEMESTER - 1

AUMM 131.2b: Mathematics -I

(Differential Calculus and Sequence and Series)

Course Outcomes:

- **CO1:** Get knowledge on differential Calculus of one or more variable.
- **CO2:** Equipped to link the topic studied in Calculus to the real world and the student's own experience.
- **CO3:** Study Definition and Summation of series of various types.

SEMESTER-2

AUMM 231.2b: Mathematics -II

(Integral Calculus and Vector Differentiation)

Course Outcomes:

- **CO1 :** Get knowledge on differential Calculus of one or more variable.
- **CO2 :** Understanding multiple integration and its applications in Chemistry.
- **CO3 :** Knowledge in Vector differentiation.

SEMESTER - 3

AUMM 331.2b: Mathematics - III

(Linear Algebra, Probability Theory & Numerical Solutions)

Course Outcomes:

- **CO1:** To study linear vector spaces, eigen values and eigen vectors, diagonalizing matrices, applications of diagonalization
- **CO2:** Getting some basic ideas on Probability and Statistical methods
- **CO3:** Knowledge on Algebraic and transcendental equations and some interpolation methods.

SEMESTER - 4

AUMM 431.2b: Mathematics - IV

(Differential Equations, Vector Calculus, and Abstract Algebra)

Course Outcomes:

- **CO1:** Study the formation and solution of first and higher order differential equations, and their applications, especially in Chemistry.
- **CO2:** Evaluating line, surface, volume integrals.
- **CO3:** Study about group and Representation theory.

FDP B.Sc. PHYSICS (Complementary)			Instructional h/week	Credit	ESE duration (h)	CE (%)	ESE (%)
Semester	**Paper Code**	**Title of Course**					
1.	AUMM 131.2d	Calculus and Sequence and Series.	4	3	3	20	80
2.	AUMM 231.2d	Application of Calculus and Vector Differentiation.	4	3	3	20	80
3.	AUMM 331.2d	Linear Algebra, Special Functions and Calculus.	5	4	3	20	80
4.	AUMM 431.2d	Fourier Series, Complex Analysis and Probability Theory	5	4	3	20	80

SEMESTER - 1

AUMM 131.2d: Mathematics - I
(Calculus and Sequences and Series)

Course Outcomes:

- **CO1 :** Get knowledge on the application of mathematical methods to Physics.
- **CO2 :** Equipped to link the topic studied in Calculus to the real world and the student's own experience.
- **CO3 :** A basic knowledge in differential calculus and integral calculus.

SEMESTER - 2

AUMM 231.2d: Mathematics - II
(Applications of Calculus and Vector Differentiation)

Course Outcomes:

- **CO1:** Acquiring knowledge in Vector differentiation
- **CO2:** Studying application of differentiation and integration.
- **CO3:** Understanding multiple integration and its application.

SEMESTER - 3

AUMM 331.2d: Mathematics - III
(Differential Equations, Vector Integration, Fourier Series and Linear Algebra)

Course Outcomes:

- **CO1:** Study different methods of solving differential equations and modelling situations in Physics using differential equations.
- **CO2:** Learn integration of vector valued functions, and thus learn to evaluate line, surface, volume integrals.
- **CO3:** Understand special functions like, Factorial Function, Gamma Function and Beta Functions and study their properties.

SEMESTER - 4

AUMM 431.2d: Mathematics - IV
(Fourier Series, Complex Analysis and Probability Theory)

Course Outcomes:

- **CO1:** Learn analytic functions, evaluation of definite integrals using residue theorem, conformal mapping and some of its applications.
- **CO2:** Getting some basic ideas on Probability and Statistical methods.
- **CO3:** Intended for Physics students to lay emphasis on applications Fourier Series.

FDP B. A. ECONOMICS/ ANALYTICAL ECONOMICS (Complementary)			Instructional h/week	Credit	ESE duration (h)	CE (%)	ESE (%)
Semester	**Paper Code**	**Title of Course**					
1.	AUMM 131.1a/ AUMM131.1c	Differential Calculus of Functions of one Variable	3	2	3	20	80
2.	AUMM 231.1a/ AUMM231.1c	Multivariate Differential Calculus, Sequences and Series	3	3	3	20	80
3.	AUMM 331.1a/ AUMM331.1c	Integral Calculus and Linear Algebra	3	3	3	20	80
4.	AUMM 431.1a/ AUMM431.1c	Differential Equations, Difference Equations and Linear Programming	3	3	3	20	80

SEMESTER - 1

AUMM 131.1a/131.1c: Mathematics for Economics - I (Differential Calculus of Functions of One Variable)

Course Outcomes:

- **CO1:** Intended for Economics students lays emphasis on the increased use of mathematical methods in Economics.
- **CO2:** To get working knowledge on limits, continuity and functions.
- **CO3:** Learn Differentiation and its basic applications in Economics, to study how quickly quantities change over time, understand slope of a curve as rate of change.
- **CO4**: Study the concepts of increasing and decreasing functions, maxima and minima, and find its applications through functions familiar in Economics.

SEMESTER - 2

AUMM 231.1a/231.1c: Mathematics for Economics - II (Sequences, Series and Multivariate Differential Calculus)

Course Outcomes:

- **CO1:** Learn sequences and infinite series and apply it in determining the present discounted values and investment projects.
- **CO2:** Learn exponentials and logarithms and their applications in solving economic problems such as, compound interest and present discounted values.
- **CO3:** Understand partial differentiation and its applications in Economics.

SEMESTER - 3

AUMM 331.1a/331.1c: Mathematics for Economics - III (Integral Calculus and Linear Algebra)

Course Outcomes:

- **CO1:** Learn different methods integration and apply it to find the area under a curve.
- **CO2:** Understand the applications of integration through functions familiar in Economics.
- **CO3:** Learn basics of matrix algebra.

SEMESTER - 4

AUMM 431.1a/431.1c: Mathematics for Economics - IV (Linear Programming, Differential Equations and Difference Equations)

Course Outcomes:

- **CO1:** To use linear programming methods in economic decision problems.
- **CO2:** To solve problems in Economics using difference equations.
- **CO3:** To learn various types of differential equations and methods to solve them.

FDP IN BOTANY AND BIOTECHNOLOGY

SEMESTER I

Foundation Course - 1

AUBB121 - Methodology and Perspective of Biotechnology

***Aim and Objectives*:** The aim is to introduce the modern scientific methods and to familiarize biotechnology and its various areas. The students will be able to understand how science works. Students will learn how to apply IT in Biological science. They will receive a general awareness about biotechnology and its application in various fields.

Complementary Course - 1

AUBB131 - Introduction to Biochemistry

***Aim and Objectives*:** To give basic awareness about the concepts and physical aspects in biochemistry and to develop analytical skills in students in order to prepare them to use instruments.

Core Course - 1

AUBB141 - Angiosperm Anatomy and Reproductive Botany

***Aim and objectives*:** The course is aimed to bring the basic concept and understanding about the anatomy of the flowering plants and its relationship to the physiology and environmental adaptability of the plants. It also gives a basic idea on the reproduction and development of the flowering plants and its adaptation to suit to its environment.

Vocational Core Course - 1

AUBB151 - Microbiology

***Aim and Objectives*:** The course on microbiology is destined to give a thorough and basic understanding in various aspects of classical Microbiology, which forms the basis of any biotechnology application. Students were expected to master the major theoretical and practical expertise from this course.

Semester II

Foundation Course - 2

AUBB221 - Biophysics and Instrumentation

***Aim and Objectives*:** The aim is to introduce the physical aspects and bioenergetics of the living system and to familiarize the principle and working of various instruments used in biotechnology experiments. The students will be able to understand the fundamentals of biophysics and the general instrumental techniques used in biotechnology.

Complementary Course - 2
AUBB231 - General Biochemistry

***Aim and Objectives*:** To familiarize the students with the building blocks of living matter, the biomolecules, their structure, components, reactions, their derivatives, biological significance and the basic tests to identify them.

Core Course - 2
AUBB241 - Environmental Studies

***Aim and Objectives*:** Students should acquire a basic understanding about the structure function of the environment and its interaction with the living systems. It will impart the geographical distribution of plants and the impact of human intervention in the environment and the delicate balance of various factors in the environment. It gives an idea about the various types of biodiversity and the influence of environmental pollution on the biodiversity.

Core Course - Practical
AUBB24PI - Practical Botany I
(Practical of AUBB141 & AUBB241)

Vocational Core Course - 2
AUBB251 - Microbial Metabolism, Genetics and Diseases

Vocational Core Course - Practical
AUBB25PI - Biotechniques I
(Practical of AUBB151 & AUBB251)

SEMESTER III

Complementary Course - 3
AUBB331 - Physiological Aspects in Biochemistry

***Aim and Objectives*:** The course is intended to introduce the student to the basics of physiological aspects and to familiarize the students with the basics of human nutrition.

Core Course - 3
AUBB341 - Phycology, Mycology, Lichenology and Plant Pathology

***Aim and Objectives*:** To impart basic knowledge about lower plants such as algae, fungi, Lichen and the diseases caused by these organisms in plants. This will give an account on the life cycle, habitat, anatomy, classification and its involvement in the life cycle of other members of living world.

Core Course - 4
AUBB342 - Horticulture, Mushroom Cultivation and Marketing

***Aim and Objectives*:** This course will give an idea about the application of biological science particularly plant science in business generations and self-employment. This focuses on the horticulture, Mushroom cultivation, its marketing and also in forest depended economy and its impact on society

Vocational Core Course - 3
AUBB351 - Protista and Animal Diversity

***Aim and Objectives*:** This course is designed in such a way to get a basic insight into the diversity of animals and its morphological and physiological adaptations suited to their ecosystems.

Vocational Core Course - 4
AUBB352 - Animal Physiology and Anatomy

***Aim and Objectives*:** This course will give very fundamental and essential information about the anatomy and functioning of the various types of cell, tissues and organs in selected model organisms.

SEMESTER IV

Complementary Course - 4
AUBB431 - Metabolism

***Aim and Objectives*:** The course aims at providing an overview of energy production by explaining the general principles of cellular energy metabolism and schematizing the different metabolic pathways.

Complementary Course - Practical
AUBB43PI - Practical Biochemistry I
(Practical of AUBB131, AUBB231, AUBB331 & AUBB431)

AUBB441 - Bryology, Pteridology, Gymnosperms and Paleobotany

Core Course - 6

AUBB442 - Cell Biology, Plant Breeding and Evolutionary Biology

***Aim and Objectives*:** This course will provide a basic understanding in cell biology, plant breeding and evolution, which is needed for a student of biology and can supplement in understanding and pursuing studies in Biotechnology.

Core Course - Practical

AUBB44PII - Practical Botany II

Vocational Core Course - 5

AUBB451 - Molecular Biology

***Aim and Objectives*:** Molecular biology is basis of modern biology and biotechnology. This course imparts a very essential foundation for the proper understanding of life at molecular level, which is essential for further studies related to genetic engineering, immunology and other modern applied aspects of biology.

Vocational Core Course - 6

AUBB452 - Immunology

Credits 2

Vocational Core Course - Practical

AUBB45PII - Biotechniques II

(Practical of AUBB351, AUBB352, AUBB451 & AUBB452)

SEMESTER V

Core Course - 7

AUBB541 - Angiosperm Morphology and Systematic Botany

Credits 4

***Aim and Objectives*:** The course is designed to give a basic awareness in systematic botany and morphology of higher plants and the course should generate interest in students to pursue continuous studies in systematic botany.

Core Course - 8

AUBB542 - Economic Botany, Ethnobotany and Medicinal Botany

***Aim and Objectives*:** This gives awareness about the importance of Medicinal plants and its useful parts, economically important plants in our daily life and also about the traditional medicines and herbs, and its relevance in modern times.

SEMESTER V
Open Course (Vocational) - 5

SEMESTER V
Vocational Core Course - 7
AUBB551 - Recombinant DNA Technology

***Aim and Objectives*:** To give a basic training to the students of Biotechnology on recombinant DNA and related techniques. Training in this course will create an interest in genetic engineering and is essential for further studies in Biotechnology.

Vocational Core Course - 8
AUBB552 - Plant Biotechnology
Credits 3
Contact Hours: 54 (Theory 36 + Practical 18)

***Aim and Objectives*:** This course is designed to impart basic knowledge in the applied aspects of plant biotechnology for the improvement of agriculture and plant based industries. It will give an outline of plant tissue culture cell culture and plant genetic transformation methods, which will help the students to pursue further studies in these aspects.

Vocational Core Course - 9
AUBB553 - Animal Biotechnology

***Aim and Objectives*:** To introduce the subject of animal biotechnology and its applications to the students in an attractive and simple manner.

AUBB581.a - Bioinformatics
Credits 2
Contact Hours: 54

***Aim and Objectives*:** This course is for non-biology or non-biotechnology students, who are interested to know about the methods and application of computers and bioinformatics and its contribution in the various fields of biotechnology.

SEMESTER VI
Elective Course (Vocational) - 6
AUBB581.b - Food and Dairy Biotechnology

***Aim and Objectives*:** This course is for non-biology or non-biotechnology students. Students from other disciplines are also can undergo this course to get basic knowledge in the application of Biotechnology in food processing, food spoilage, food preservation and dairy industry.

Open Course (Vocational) - 3
AUBB581.c - Genetic Engineering

***Aim and Objectives*:** This course id for non-biology or non-biotechnology students, who are interested to know about the methods and application of genetic engineering and its contribution in the various fields of biotechnology.

SEMESTER VI
Core Course - 9
AUBB641 - Plant Physiology

***Aim and Objectives*:** To give basic information on plant physiology and the related biochemical and biophysical aspects to the students of Biotechnology. This course will equip the students to understand the functions of the plant system on biophysical and biochemical approach.

Core Course - 10
AUBB642 - Genetics

***Aim and Objectives*:** This course is supposed to supplement the basic knowledge in genetics in general and Mendelian genetic in particular. This is essential to study the various branches of biology like molecular biology and gene technology.

Core Course - Practical
AUBB64PIII - Practical Botany III
(Practical of AUBB541, AUBB542, AUBB641 & AUBB642)
Credits 2

Vocational Core Course - 10
AUBB651 - Food and Industrial Biotechnology

***Aim and Objectives*:** The students will be introduced to the industrial application of

SEMESTER VI

Elective Course (Vocational) - 7

Microbiology and Bioprocess technology in Biotechnology through this course. Students should be trained to understand commercial importance of biotechnology through its industrial aspects.

Vocational Core Course - 11

AUBB652 - Environmental Biotechnology

Credits 2

Contact Hours: 72 (Theory 36 + Practical 36)

***Aim and Objectives*:** This course is aimed to bring an enthusiasm on environmental protection and it should give the contribution of biotechnology techniques to keep the environment clean and healthy. As well it should highlight the economic aspects and bioprocess technology in the application of biotechnology in protecting the environment from pollution.

Vocational Core Course - Practical

AUBB65PIII - Biotechniques III

(Practical of AUBB551, AUBB552, AUBB553, AUBB651 & AUBB652)

Elective Course (Vocational) - 1

AUBB691.a - Bioinformatics and Nanobiotechnology

Credits 2

Contact Hours: 36

***Aim and Objectives*:** This course is for biotechnology students, who are interested to know about the methods and application of bioinformatics and modern nanobiomolecules and their contribution in the various fields of biotechnology and healthcare.

AUBB691.b - Biostatistics

***Aim and Objectives*:** This course is for biotechnology students, who are interested to know about the methods and application of statistics and its contribution in the various fields of biotechnology.

SEMESTER VI
Project Work
AUBB691.c - Food and Dairy Biotechnology

***Aim and Objectives*:** This course is for Biotechnology students. Students can undergo this course to get basic knowledge in the application of Biotechnology in food processing, food spoilage, food preservation and dairy industry.

AUBB653 - Project on Biotechnology

BSC BIOTECHNOLOGY

SEMESTER I

AUBB121 - METHODOLOGY AND PERSPECTIVE OF BIOTECHNOLOGY

***Aim and Objectives*:** The aim is to introduce the modern scientific methods and to familiarize biotechnology and its various areas. The students will be able to understand how science works. Students will learn how to apply IT in Biological science. They will receive a general awareness about biotechnology and its application in various fields.

COURSE OUTCOMES

CO1	Design and plan an experiment
CO2	Execute statistical methods in biological investigations
CO3	Understand and implement IT in learning
CO4	Differentiate the classical and modern aspects of Biotechnology
CO5	Describe the scope and applications of Biotechnology
CO6	List out the Biotechnology institutes and companies in India
CO7	Use safety protocols in biotechnology experiments

AUBB151 - MICROBIOLOGY

***Aim and Objectives*:** The course on microbiology is destined to give a thorough and basic understanding in various aspects of classical Microbiology, which forms the basis of any biotechnology application. Students were expected to master the major theoretical and practical expertise from this course.

COURSE OUTCOMES

CO1	Define the diversity of microbial world
CO2	Identify Gram positive and Gram negative bacteria
CO3	Compare the purpose of different growth medias
CO4	Demonstrate the isolation of a pure colony from a mixture of bacterial cultures
CO5	Describe the role of microorganisms in agriculture and biogeochemical cycles

SEMESTER II

***Aim and Objectives*:** The aim is to introduce the physical aspects and bioenergetics of the living system and to familiarize the principle and working of various instruments used in biotechnology experiments. The students will be able to understand the fundamentals of biophysics and the general instrumental techniques used in biotechnology.

AUBB221 - BIOPHYSICS AND INSTRUMENTATION

COURSE OUTCOMES	
CO1	Discuss the molecular organization of different levels of protein and the molecular structureof water- hydrogen bonds and physical property of water
CO2	Knowledge of storage, flow of energy and their applications-electrical properties of biological compartments; electrochemical gradients, membrane potential, chemiosmotichypothesis.
CO3	Application of the law of optics in understanding strategies of light reception in animals,correction of vision faults
CO4	identify and differentiate working principles, instrumentation, and applications of variousbio-analytical instruments
CO5	Recall and relate the concepts of radioactivity and its applications
CO6	Reproduce and design an experiment with step-by-step instructions to address a researchproblem or bio-analytical practical/project

AUBB251 - MICROBIAL METABOLISM, GENETICS AND DISEASES

***Aim and Objectives*:** This course is designed to get an in-depth knowledge in Microbial metabolism, microbial genetics, and microbial diseases. This knowledge is very important as far as Biotechnology is concerned. The students are expected to master all microbial related techniques to pursue studies in biotechnology.

COURSE OUTCOMES

CO1	Understand metabolic diversity among microbes
CO2	Compare aerobic respiration, anerobic respiration and fermentation in bacteria
CO3	Discuss the different methods of bacterial gene transfer
CO4	Describe the various diseases caused by microorganisms

AUBB25PI - BIOTECHNIQUES I Practical

SEMESTER III

AUBB351 - PROTISTA AND ANIMAL DIVERSITY

Aim and Objectives: This course is designed in such a way to get a basic insight into the diversity of animals and its morphological and physiological adaptations suited to their ecosystems.

COURSE OUTCOMES

CO1	understand different types of tissue, organs, and organs systems
CO2	understand classify and identify the diversity of animals.
CO3	identifies his role in nature as a protector, preserver, and promoter of life which he hasachieved by learning, observing, and understanding life.
CO4	understand the basis of life processes in the non-chordates and recognize the economicallyimportant invertebrate fauna.
CO5	Understand the basis of life processes in the non-chordates and recognize the economicallyimportant invertebrate fauna.
CO6	Describe the diversity in form, structure, and habits of vertebrates
CO7	Explain general characteristics and classification of different classes of Vertebrates,theirevolutionary importance and adaptations

AUBB352 - ANIMAL PHYSIOLOGY AND ANATOMY

***Aim and Objectives*:** This course will give very fundamental and essential information about the anatomy and functioning of the various types of cell, tissues and organs in selected model organisms.

COURSE OUTCOMES

CO1	understand different types of tissue, organs, and organs systems

CO2	understand the terminologies and working mechanisms relating to various organ systems inanimal physiology- The nervous system, Muscle, skeletal system Reproductive System, and Endocrine System.
CO3	understand the physiology of Digestion, Respiration, Renal physiology, Blood, and the Physiology of the Heart
CO4	analyze how organs system interacts with each other and ultimately control and coordinatethe functioning and well-being of the organism
CO5	Apply the knowledge to lead a healthy life

SEMESTER IV

AUBB451 - MOLECULAR BIOLOGY

***Aim and Objectives*:** Molecular biology is basis of modern biology and biotechnology. This course imparts a very essential foundation for the proper understanding of life at molecular level, which is essential for further studies related to genetic engineering, immunology and other modern applied aspects of biology.

COURSE OUTCOMES

CO1	Memorize the significant historical events in the development of molecular Biology
CO2	Explain the various forms of DNA and understand the applications in different life situations
CO3	Utilize the structure of nucleic acids and genetic code for understanding the central dogmaof life
CO4	Understand and differentiate the principle behind DNA replication, transcription, andtranslation
CO5	Explain the mechanism of gene regulation
CO6	Understand the fundamental concept of the eukaryotic chromosome, its organization,cytoplasmic and chloroplast genome.
CO7	Evaluate the importance of Insertional elements and transposons

AUBB452 - IMMUNOLOGY

***Aim and Objectives*:** To give a basic training to the students of Biotechnology on immune system, immunology and immunology related techniques. Training in this course will create an interest in immunology and is essential for further studies in Biotechnology.

COURSE OUTCOMES

CO1	Define the cells and organs involved in immunity.
CO2	Explain techniques based on antigen antibody interaction
CO3	Interpret the genetic basis of antibody diversity
CO4	Compare various autoimmune diseases and causes

SEMESTER V

AUBB551 - RECOMBINANT DNA TECHNOLOGY

***Aim and Objectives*:** To give a basic training to the students of Biotechnology on recombinant DNA and related techniques. Training in this course will create an interest in genetic engineering and is essential for further studies in Biotechnology.

COURSE OUTCOMES

CO1	List out the enzymes and vectors used in rDNA technology
CO2	Execute the steps involved in the construction of recombinant DNA
CO3	Describe the techniques in rDNA technology
CO4	Define the applications of transgenic organisms

AUBB552 - PLANT BIOTECHNOLOGY

***Aim and Objectives*:** This course is designed to impart basic knowledge in the applied aspects of plant biotechnology for the improvement of agriculture and plant based industries. It will give an outline of plant tissue culture cell culture and plant genetic transformation methods, which will help the students to pursue further studies in these aspects.

COURSE OUTCOMES

CO1	Demonstrate the preparation of plant tissue culture medium.
CO2	Differentiate various methods in plant tissue culture
CO3	Identify the applications of invitro culture and transgenic plants

AUBB553 - ANIMAL BIOTECHNOLOGY

***Aim and Objectives*:** To introduce the subject of animal biotechnology and its applications to the students in an attractive and simple manner

COURSE OUTCOMES

CO1	List out the major events in the history of animal cell culture

CO2	understand animal cell culture methods, substrate, culture media, preservation, andmaintenance of cell lines
CO3	to differentiate viable and nonviable cells and different assays for screening cell viabilityand cytotoxicity and its applications in various fields
CO4	Describe the various animal cell culture products and their applications
CO5	understand the production of monoclonal antibodies, and bioreactors for large-scale cultureof cells
CO6	Knowledge of transgenic animals, *in vitro* fertilization, and embryo transfer. Conceptualunderstanding of Transplantation
CO7	Evaluate and discuss public and ethical concerns over the use of animal biotechnology

AUBB581.A - BIOINFORMATICS

***Aim and Objectives*:** This course is for non-biology or non-biotechnology students, who areinterested to know about the methods and application of computers and bioinformatics and its contribution in the various fields of biotechnology.

COURSE OUTCOMES

CO1	Discuss on various databases in biotechnology
CO2	Demonstrate sequence alignment
CO3	Compare the applications of bioinformatics in proteomics and genomics

AUBB581.B - FOOD AND DAIRY BIOTECHNOLOGY

***Aim and Objectives*:** This course is for non-biology or non-biotechnology students. Students from other disciplines are also can undergo this course to get basic knowledge in the application of Biotechnology in food processing, food spoilage, food preservation and dairy industry.

COURSE OUTCOMES

CO1	List out the various fermented foods
CO2	Discuss the role of microorganisms in food spoilage
CO3	Implement the various methods of food preservation
CO4	Experiment the quality testing methods of milk.

AUBB581.C - GENETIC ENGINEERING

***Aim and Objectives*:** This course id for non-biology or non-biotechnology students, who are interested to know about the methods and application of genetic engineering and its contribution in the various fields of biotechnology.

COURSE OUTCOMES	
CO1	List out the enzymes and vectors used in rDNA technology
CO2	Execute the steps involved in the construction of recombinant DNA
CO3	Describe the techniques in rDNA technology
CO4	Define the applications of transgenic organisms

AUBB651 - FOOD AND INDUSTRIAL BIOTECHNOLOGY

***Aim and Objectives*:** The students will be introduced to the industrial application of Microbiology and Bioprocess technology in Biotechnology through this course. Students should be trained to understand commercial importance of biotechnology through its industrial aspects

COURSE OUTCOMES	
CO1	List out industrially important microorganisms and their products
CO2	Design a fermentor model
CO3	Explain the steps in upstream and downstream processing
CO4	Relate the beneficial and hazardous effect of microbes in food industry

SEMESTER VI

AUBB652 - ENVIRONMENTAL BIOTECHNOLOGY

***Aim and Objectives*:** This course is aimed to bring an enthusiasm on environmental protection and it should give the contribution of biotechnology techniques to keep the environment clean and healthy. As well it should highlight the economic aspects and bioprocess technology in the application of biotechnology in protecting the environment from pollution.

COURSE OUTCOMES

CO1	Explain the scope of Environmental Biotechnology
CO2	Understand basic ecological concepts, various pollution, its measurements & remediation.
CO3	Assess the quality of the water sample through various parameters - MPN test, dissolvedoxygen concentration, biological oxygen demand, chemical oxygen demand.
CO4	Understand the working of the sewage treatment plant
CO5	Evaluate the importance of new waste treatment strategies
CO6	Understanding the various green energy forms and their sources and applications
CO7	Evaluate the measures to reduce environmental pollution
CO8	Understand the importance of the different environmental act

AUBB691.A - BIOINFORMATICS AND NANOBIOTECHNOLOGY

***Aim and Objectives*:** This course is for biotechnology students, who are interested to know about the methods and application of bioinformatics and modern nanobiomolecules and their contribution in the various fields of biotechnology and healthcare

COURSE OUTCOMES

CO1	Discuss on various databases in biotechnology
CO2	Demonstrate sequence alignment
CO3	Explain the concepts of phylogenetic tree construction
CO4	Compare the applications of bioinformatics in proteomics and genomics
CO5	Define the concept of nanobiotechnology and its applications

AUBB691.B - BIOSTATISTICS

COURSE OUTCOMES

***Aim and Objectives*:** This course is for biotechnology students, who are interested to know about the methods and application of statistics and its contribution in the various fields of biotechnology.

CO1	Execute statistical methods in biological investigations
CO2	understand the basic concepts in hypothesis testing- chi square test, student t-test e

AUBB691.C - FOOD AND DAIRY BIOTECHNOLOGY

***Aim and Objectives*:** This course is for Biotechnology students. Students can undergo this course to get basic knowledge in the application of Biotechnology in food processing, food spoilage, food preservation and dairy industry.

COURSE OUTCOMES	
CO1	List out the various fermented foods
CO2	Discuss the role of microorganisms in food spoilage
CO3	Implement the various methods of food preservation
CO4	Experiment the quality testing methods of milk.

PROJECT AUCH64PVI

COURSE OUTCOMES	
CO1	Develop an aptitude for research in chemistry
CO2	Practice research methodology and literature search
CO3	Critically choose appropriate research topic and presentation

Industrial Pollution and Environmental AUCH691.c1

COURSE OUTCOMES

CO1	Explain the material cycle in ecosystem.
CO2	Awareness on biodiversity conservation
CO3	Get awareness of Sustainable Development and Environment Management
CO4	Understand the various process of control of potential threat to the environment from human activities
CO5	Familiarize with the instruments used for environmental monitoring &interpreting environmental data
CO6	Get an awareness on the fundamental environment laws.
CO7	Practice Punctuality and regularity in doing experiments and submitting Lab records

Introduction to Pharmaceuticals & Cosmetics AUCH691.c2	
COURSE OUTCOMES	
CO1	Understand the relevance of organic chemistry in chemical industry.
CO2	Get knowledge to apply organic reactions in pharmaceutical production.
CO3	Explain the various catalytic processes in industry.
CO4	Describe the preparation of important drugs
CO5	Familiarize with the pharmaceutical formulation.
CO6	Understand the formulation of various cosmetics.
CO7	Get aware of Intellectual Property Rights.

APPLIED POLYMER CHEMISTRY AUCH691.c3	
COURSE OUTCOMES	
CO1	Differentiate between Natural and synthetic polymers
CO2	Understand polymerization process of monomeric units
CO3	Critically analyse the advantages and disadvantages of polymers
CO4	Analyse different Applications of Polymers
CO5	Identify the properties of polymers.
CO6	Realize the necessity of biodegradable substitutes for a sustainable development

INDUSTRIAL ASPECTS OF FOOD CHEMISTRY AUCH691.c4	
COURSE OUTCOMES	
CO1	Explain the major components of food

CO2	Identify additives added to foods for various purposes
CO3	Describe the various chemical reactions of food components
CO4	Acquire knowledge of adulteration and toxicity of food
CO5	Understand the basic concepts of food processing and packaging.
CO6	Get knowledge of analysis of food components

BSC CHEMISTRY

SEMESTER I

INORGANIC CHEMISTRY I AUCH141	
COURSE OUTCOMES	
CO1	Discuss the course of development of the structure of atoms.
CO2	Apply rules for filling electrons in classifying elements into s, p,d and f blocks
CO3	Define various scales of electronegativities and their applications
CO4	Define Effective nuclear charge and Slater's rules
CO5	Discuss about diagonal relationship and anomalous behaviour of hydrogen and other first elements in each group.
CO6	Correlate and predict general properties of s and p block elements based on their electronic configuration.
CO7	Realise applications of s and p block elements in sustainable and renewable energy sources.
CO8	Define various concepts of acids and bases.
CO9	Understand reactions in non-aqueous solvents.
CO10	Realise various causes, effects and control measures of environmental pollution.
CO11	Review national movements for environmental protection.

Inorganic Qualitative Analysis AUCH44PI (I,III &IV SEMESTERS)	
COURSE OUTCOMES	
CO1	Obey Lab safety instructions, develop qualities of punctuality, regularity and scientific attitude, out look and scientific temper (GOOD LAB PRACTICES)
CO2	Develop skill in safe handling of chemicals, take precaution against accidents and follow safety measures
CO3	Use glass wares ,electric oven, burners and weighing balance
CO4	Develop skill in observation , prediction and interpretation of reactions
CO5	Detect solubility, and classify compounds according to their solubility
CO6	Apply the principle of common ion effect and solubility
CO7	product in the identification and separation of ions
CO8	Use filtration and chomatographic techniques, vacuum pump and centrifugal pumps

SEMESTER II

CHEMISTRY –ITS ORIGIN, METHODOLOGY & IMPACTS AUCH221	
COURSE OUTCOMES	
CO1	Appreciate the development of scientific theories through years with specific examples
CO2	Develop curiosity and scientific attitude towards the application of chemistry in daily life
CO3	Outline a procedure for experimentation
CO4	Appraise the current development in Chemistry
CO5	Identify the common ingredients of household synthetic products
CO6	Discriminate and classify chemicals used as drugs, explosives,
CO7	Get motivated in visiting chemical Industries
CO8	Adopt safety measures in handling chemicals
CO9	Draw titration curves and explain theory of volumetric titrations
CO10	Select suitable indicators for acid base titration knowing the theories of acid base

	titration and indicators
CO11	Develop computational skills
CO12	Discuss separation techniques of filtration and chromatographic techniques

Computer Lab for Foundation Course II (AUCH 1221) SEMESTER II NoESE	
COURSE OUTCOMES	
CO1	Get acquainted with Computer Lab based instruction on the use of computer and internet in learning.
CO2	Use of educational softwares, information mining from internet and using INFLIBNET/ NICNET, NPTEL and VIRTUAL LABS OF MHRD.
CO3	Learn Word processing and document preparation. Use of Spread sheets in Data handling and presentation
CO4	Develop skill in chemical structure drawing and visualization of molecules using chemistry softwares

SEMESTER III

INORGANIC CHEMISTRY II AUCH341	
COURSE OUTCOMES	
CO1	Understand various theories of chemical bonding and their limitations.
CO2	Predict stability of atoms and the nature of bonding between atoms.
CO3	Discuss various applications of intermolecular interactions
CO4	Understand chemistry of glass, silicates and silicones
CO5	Discuss chemistry of Boron compounds, oxyacids and oxides of Phosphorus

CO6	Understand refractory carbides, nitrides, borides and silicides.
CO7	Describe various types of halogen compounds.
CO8	Understand chemistry of noble gas
CO9	Understand inorganic polymers and their applications.
CO10	Distinguish between types of nuclear reactions.
CO11	Describe measurement of radioactivity.
CO12	Discuss applications of radioactivity in various fields.
CO13	Understand introductory concepts of nano chemistry
CO14	Suggest methods of synthesizing nano materials.
CO15	Appreciate the variety of applications of nanomaterials.

SEMESTER IV

ORGANIC CHEMISTRY – I AUCH441	
COURSE OUTCOMES	
CO1	Recall the fundamentals of organic chemistry.
CO2	Apply the electron displacement effects to compare acidity, basicity, and stability of organic compounds/intermediates.
CO3	Judge the reaction mechanism of substitution and elimination based on the structure of alkyl halides.
CO4	Summarise the chemistry of reaction intermediates.
CO5	Discuss optical,geometrical, and conformational isomerism of organic compounds.
CO6	Use CIP rules to predict the configuration of organic compounds
CO7	Differentiate photochemical and thermal reactions.
CO8	Discuss theory of colour and constitution and the method of synthesis of dyes
CO9	Explain aromaticity, orientation effect and mechanism of aromatic electrophilic substitution.
CO10	Demonstrate the method of determination of reaction mechanism.

ORGANIC CHEMISTRY EXPERIMENTS AUCH64PIV	
COURSE OUTCOMES	
CO1	Develop curiosity in systematically analyzing organic compounds
CO2	Differentiate and identify organic compounds by their characteristic reactions towards standard reagents
CO3	Confirm their findings by preparing solid derivatives, and thus understand reliability of experimental results
CO4	Determine physical constants of organic compounds
CO5	Separate organic compounds by TLC/paper/column chromatographic techniques
CO6	Prepare soaps
CO7	Apply the principles and techniques in organic chemistry, thereby developing skill in designing an experiment to synthesize and purify organic compounds
CO8	Practice systematic scientific procedure and prepare adequate report of them
CO9	Understand the chemistry behind organic reactions

SEMESTER V

PHYSICAL CHEMISTRY I AUCH542	
COURSE OUTCOMES	
CO1	Identify, compare, and explain the properties and behaviour of ideal and real gases, knowing kinetic theory of gases and different types of molecular velocities and collision properties.
CO2	Perform numerical problems of gases under a set of conditions
CO3	Differentiate between amorphous and crystalline solids, understand anisotropy, symmetry, and types of crystals, X Ray diffraction methods of study of crystal structure, identify the imperfections in crystals understand the physical aspects of surface tension and viscosity of liquids and the basics of liquid crystals and their applications
CO4	Representation of lattice planes and calculation of interplanar spacing, draw the crystal structures of NaCl and CsCl
CO5	Recalling the basic concepts of solutions, concentration terms, Raoult's law and colligative properties
CO6	Determination of colligative properties and molecular mass of solute
CO7	Understand the working principle Electro-Chemical cells
CO8	Design and determine the potentials of electrochemical systems

CO9	Assess the nature of electrolytes in terms of dissociation and ionic conductance of electrolytes in terms of mobility of ions
CO10	Integrate the theory into practical applications of conductometric titrations

INORGANIC CHEMISTRY III AUCH541	
COURSE OUTCOMES	
CO1	Discuss the electronic configuration and related properties of transition elements and inner transition elements
CO2	Understand preparation of selected transition metal compounds, lanthanides and actinides
CO3	Compare lanthanide and actinide contraction and their consequences.
CO4	Name coordination complexes, organometallics, discuss their properties and bonding
CO5	Understand stability of complexes and factors affecting stability
CO6	Describe isomerism in coordination compounds
CO7	Discuss spectrochemical series, CFSE and their consequences
CO8	Correlate geometry , stability and Jahn Teller effect and its causes
CO9	Discuss reaction mechanisms and applications of coordination compounds
CO10	Name and Classify organometallic compounds
CO11	Discuss preparation and properties and bonding of carbonyls
CO12	Identify the role of organometallic compounds in organic synthesis
CO13	Discuss the role of inorganic ions in biological systems and biochemistry of haemoglobin, myoglobin, cytochromes, iron sulphur proteins
CO14	Discuss various bioinorganic processes like photosynthesis, working of sodium potassium pump, etc
CO15	Describe various aspects of metallurgy and instrumental methods of analyses viz., spectrophotometric methods, thermal methods and tools available to measure nanomaterials

ORGANIC CHEMISTRY II AUCH542	
COURSE OUTCOMES	
CO1	Describe the preparation of hydroxy, carbonyl & amino compounds, carboxylic acids and organo Mg, Li & Zn compounds.
CO2	Distinguish primary, secondary & tertiary alcohols and amines.
CO3	Write reaction steps in ascending & descending of alcohol and aliphatic acid series, interconversion of aldose and ketose, chain lengthening and shortening of aldoses.
CO4	Explain the structure of glucose, fructose, sucrose, starch and cellulose.
CO5	Predict the outcome and mechanism of simple organic reactions, using a basic understanding of the reactivity of functional groups

CO6	Illustrate the use of organic reagents in synthesis.
CO7	Discuss fundamental principles of supramolecular and green chemistry

INORGANIC VOLUMETRIC ANALYSIS AUCH54PII	
COURSE OUTCOMES	
CO1	Develop skill in selecting, primary and secondary standards
CO2	Develop skill in weight calculation of primary standards weighing by electronic balance, making of solutions of definite strength (standard solutions)
CO3	Use sophisticated glass wares, calibrate apparatus and develop skill in keen observation , prediction and interpretation of results
CO4	Perform volumetric titrations under acidimetry, alkalimetry, permanganometry, dichrometry, iodimetry, iodometry, cerimetry, argentometry & complexometry
CO5	Compare the advantages and disadvantages of different volumetric techniques
CO6	Practice Punctuality and regularity in doing experiments and submitting Lab records
CO7	Elucidate the relation of allowed energy levels and chemical environment and it's spectrum of atoms through resonance spectroscopic technique

PHYSICAL CHEMISTRY EXPERIMENTS AUCH54PIII	
COURSE OUTCOMES	
CO1	Develop Scientific outlook and approach in applying principles of physical chemistry in chemical systems/reactions
CO2	Use computational methods for plotting graph
CO3	Describe systematic procedures for physical experiments
CO4	Acquire Instrumentation skill in using conductometer, potentiometer, refractometer, stalagmometer and Ostwald's viscometer.
CO5	Compare theory with experimental findings
CO6	Practice Punctuality and regularity in doing experiments and submitting Lab records
CO7	Acquire Instrumentation skill in using conductometer, potentiometer, refractometer, stalagmometer and Ostwald's viscometer.

CHEMISTRY FOR SUSTAINABLE FUTURE, WELL-BEING & FORENSICS AUCH581.b1	
COURSE OUTCOMES	
CO1	Discuss origin of life and chemical evolution of elements
CO2	Appraise the current development in chemistry and contribution of chemistry for sustainable development
CO3	Develop curiosity and scientific attitude towards the application of chemistry in daily life
CO4	Classify chemicals according to their uses
CO5	Critically choose cosmetics and cleansing agents for daily use
CO6	Become aware of chemical hazards and the precautions in handling chemicals
CO7	Beware of food adulterants
CO8	Critically select chemical fertilizers, artificial sweeteners, beverages, and food preservatives
CO9	Understand the basic concept of forensic chemistry

FUNDAMENTALS OF CHEMISTRY AND ITS APPLICATION TO EVERYDAY LIFE AUCH581.b2	
COURSE OUTCOMES	
CO1	Appreciate the evolution of Science and Chemistry and the early form of chemistry
CO2	Understand the development of Chemistry as a discipline and the role of chemistry as a central science
CO3	Discuss the fundamental properties of atom, structure of atom, classification of elements in to a periodic table
CO4	Differentiate between simple molecules and giant molecules and the bonding nature
CO5	Explain different types of bonding and predict stability
CO6	Compare properties of graphite and diamond and their structural differences
CO7	Identify house hold chemicals, their advantages and disadvantages
CO8	Become aware of chemical hazards and the precautions in handling chemicals
CO9	Beware of food adulterants
CO10	Critically select chemical fertilizers, artificial sweeteners, beverages, and food preservatives

ENVIRONMENTAL CHEMISTRY AUCH581.b3	
COURSE OUTCOMES	
CO1	Discuss the structure and composition of the atmosphere
CO2	Identify, Realise and enlist the causes of pollution to water, soil and air
CO3	Become aware of environmental issues and its effect to man and other living beings
CO4	Review major environmental disasters and suggest controlling and preventive measures
CO5	Discuss the laws of environmental protection

SEMESTER VI

PHYSICAL CHEMISTRY II AUCH543	
COURSE OUTCOMES	
CO1	Understand basic concepts of thermodynamics , spectroscopy and group theory
CO2	Apply laws of thermodynamics in physical and chemical processes and real system
CO3	Classify processes, properties and systems on a thermodynamic basis
CO4	Discuss the second law of thermodynamics and Assess thermodynamic applications using second law of thermodynamics.
CO5	Discuss basic concepts of statistical thermodynamics
CO6	Solve numerical problems based on thermodynamics and thermochemistry
CO7	Understand the basics of spectroscopic techniques- Rotational, Vibrational and Raman Spectroscopy
CO8	Compare NMR and ESR spectroscopy and their applications
CO9	Evaluate physical and chemical quantities using non spectroscopic techniques.
CO10	Identify the elements of symmetry & determine point groups of simple molecules
CO11	Differentiate diamagnetism and paramagnetism, measurement of magnetic susceptibility
CO12	Correlate dipole moment with geometry o molecules

ORGANIC CHEMISTRY III AUCH642	
COURSE OUTCOMES	
CO1	Outline the chemistry of simple heterocyclic compounds
CO2	Classify amino acids, proteins, nucleic acids, drugs, terpenes, vitamins, lipids and polymers.
CO3	Discuss the synthesis of amino acids, peptides, drugs and polymers.
CO4	Describe the isolation and structure of terpenes and alkaloids.
CO5	Explain the mechanism and techniques of polymerisation.
CO6	Discuss the principle of UV, IR, NMR and Mass spectroscopy.
CO7	Interpret spectroscopic data to elucidate the structure of simple organic compounds.
CO8	Use simple organic reactions to elucidate structure of quinoline,piperine&coniine.

PHYSICAL CHEMISTRY III AUCH643	
COURSE OUTCOMES	
CO1	Recall the basic physical concepts in quantum mechanics, colloids, adsorption, Chemical Kinetics, catalysis, chemical and ionic equilibria, phase equilibria, binary liquid systems and photochemistry
CO2	Understand the basic concepts involved in quantum mechanics, colloids, adsorption, Chemical Kinetics, catalysis, chemical and ionic equilibria, phase equilibria, binary liquid systems and photochemistry
CO3	Derive and Interpret important theories and equations involved in physical chemistry
CO4	Demonstrate the origin of quantum numbers by correlating the Cartesian and spherical polar coordinates of hydrogen atom.
CO5	Identify and recognize the applications of various principles, equations and physical processes
CO6	Perform calculations involving physical concepts and equations
CO7	Analyze` graphical representations (phase diagrams, two and three components, vapour pressure – composition and boiling point –composition, temperature-composition) present in physical chemistry.
CO8	Understand terminology
CO9	Understand the effects of external influence on various chemical processes
CO10	Understand different laws and principles of physical chemistry

GRAVIMETRIC EXPERIMENTS AUCH64PV 2	
COURSE OUTCOMES	
CO1	Understand precipitation techniques in quantitative context
CO2	Appreciate the application of silica crucible and sintered crucible in gravimetry
CO3	Practice technique of making, diluting solutions on quantitative basis
CO4	Realise the factors affecting precipitation/crystallisation
CO5	Take precautionary measures in filtration , drying and incineration of precipitates
CO6	Understand the principle of colorimetry to estimate Fe^{3+} and ammonia
CO7	Practice Punctuality and regularity in doing experiments and submitting Lab records

PROJECT AUCH64PVI	
COURSE OUTCOMES	
CO1	Develop an aptitude for research in chemistry
CO2	Practice research methodology and literature search
CO3	Critically choose appropriate research topic and presentation

Industrial Pollution and Environmental AUCH691.c1	
COURSE OUTCOMES	
CO1	Explain the material cycle in ecosystem.
CO2	Awareness on biodiversity conservation
CO3	Get awareness of Sustainable Development and Environment Management
CO4	Understand the various process of control of potential threat to the environment from human activities
CO5	Familiarize with the instruments used for environmental monitoring &interpreting environmental data
CO6	Get an awareness on the fundamental environment laws.
CO7	Practice Punctuality and regularity in doing experiments and submitting Lab records

Introduction to Pharmaceuticals & Cosmetics AUCH691.c2	
COURSE OUTCOMES	
CO1	Understand the relevance of organic chemistry in chemical industry.
CO2	Get knowledge to apply organic reactions in pharmaceutical production.
CO3	Explain the various catalytic processes in industry.
CO4	Describe the preparation of important drugs
CO5	Familiarize with the pharmaceutical formulation.
CO6	Understand the formulation of various cosmetics.
CO7	Get aware of Intellectual Property Rights.

APPLIED POLYMER CHEMISTRY AUCH691.c3	
COURSE OUTCOMES	
CO1	Differentiate between Natural and synthetic polymers
CO2	Understand polymerization process of monomeric units
CO3	Critically analyse the advantages and disadvantages of polymers
CO4	Analyse different Applications of Polymers
CO5	Identify the properties of polymers.
CO6	Realize the necessity of biodegradable substitutes for a sustainable development

INDUSTRIAL ASPECTS OF FOOD CHEMISTRY AUCH691.c4	
COURSE OUTCOMES	
CO1	Explain the major components of food
CO2	Identify additives added to foods for various purposes
CO3	Describe the various chemical reactions of food components
CO4	Acquire knowledge of adulteration and toxicity of food
CO5	Understand the basic concepts of food processing and packaging.
CO6	Get knowledge of analysis of food components

BSC PHYSICS (CORE) WITH MATHEMATICS AND MACHINE LEARNING

SEMESTER I

PY1141:BASIC MECHANICS & PROPERTIES OF MATTER

COURSE OUTCOMES	
CO1	Correlate the knowledge gathered to the immediate experimental curriculum
CO2	Distinguish the dynamics of rigid bodies of different shapes
CO3	Explain the implications of conservation laws
CO4	Interpret the flavour of classical fields from oscillations and waves

PYTHON PROGRAMMING

COURSE OUTCOMES	
CO1	Remember features, operators
CO2	Understand types of loops
CO3	Apply object-oriented terminologies
CO4	Analyse data using various plots
CO5	Evaluate regular expressions
CO6	Create user defined function

SEMESTER II

PY1241 –HEAT AND THERMODYNAMICS

COURSE OUTCOMES	
CO1	Compare thermal conductivity of various types of conductors.
CO2	Differentiate between various thermodynamic processes.
CO3	Judge the efficiency of engines by comparing the performance of various vehicles
CO4	Associate entropy and available energy in various thermodynamic processes

ARTIFICIAL INTELLIGENCE	
COURSE OUTCOMES	
CO1	Remember features of AI and knowledge-based systems
CO2	Understand basic parsing techniques
CO3	Apply search and control strategies
CO4	Analyse different matching techniques
CO5	Evaluate the performance of various searching algorithms
CO6	Create AND-OR graphs

SEMESTER III

PY 1341 ELECTRODYNAMICS	
COURSE OUTCOMES	
CO1	Coulombs law, Application of Gauss law ,Work and energy in electrostatics.
CO2	have a unified surveillance of electromagnetic phenomena and be engaged to draw qualitative conclusions about them by managing a small number of physical concepts and laws
CO3	Apply the principles of electrostatics to the solutions of problems relating to electric field and electric potential, boundary conditions and electric energy density.

CO4	To impart knowledge on the concepts of Faraday's law, induced emf and Maxwell's equation

KNOWLEDGE REPRESENTATION AND INTELLIGENCE AGENTS	
COURSE OUTCOMES	
CO1	Remember time and space complexity
CO2	Understand types of intelligent agents
CO3	Apply heuristic search techniques
CO4	Analyse the efficiency of different search techniques
CO5	Evaluate efficiency of algorithms
CO6	Create search graphs

SEMESTER IV

PY1441CLASSICAL AND RELATIVISTIC MECHANICS	
COURSE OUTCOMES	
CO1	Handle the mechanics of a single and a system of particles(both charged and uncharged) under different force fields
CO2	Explain the importance of symmetry transformation and conservation of momentum and energy.
CO3	Describe the motion of particles in central force field including planetary motion
CO4	Solve different mechanical problems in classical mechanics using Lagrangian formalism
C05	Generalize Hamiltonian mechanics to solve various problems in classical mechanics

MACHINE LEARNING
COURSE OUTCOMES

CO1	Remember applications of machine learning
CO2	Understand different learning techniques
CO3	Apply clustering of raw data
CO4	Analyse the performance of classification methods
CO5	Evaluate hierarchical methods
CO6	Create a semi supervised learning model
MACHINE LEARNING USING PYTHON LAB	
CO4	Exposure to the journey of Indian and Malayalam Cinema

SEMESTER V

PY1541- QUANTUM MECHANICS

COURSE OUTCOMES

CO1	Review and Compare the concepts of Classical Mechanics and Quantum Mechanics
CO2	Discriminate between Particle and Wave nature
CO3	Underline the postulates of Quantum Mechanics
CO4	Verify the concepts of Quantum Mechanics with examples and introduce Schrodinger equation
C05	Visualize the wave function
C06	Mathematical formulation of observables and wavefunctions
C07	Apply Schrodinger equation in various physical systems (LHO,Particle in a box etc)
C08	Review and Compare the concepts of Classical Mechanics and Quantum Mechanics
C09	Justify the phenomena of Specific Heat of Solids,Tunneling Effect, Photoelectric Effect

PY1542: STATISTICAL PHYSICS, RESEARCH METHODOLOGY AND DISASTER MANAGEMENT

COURSE OUTCOMES

CO1	Able to define phase space, microstate, macrostate and ensemble ,Learn to distinguish different statistical distributions and judge which distribution applies to a given system
CO2	Able to solve problems based on the principles of statistical mechanics
CO3	Understand the objectives , motivation and significance of research
CO4	Identify the key elements and prepare a research design
CO5	Able to write a review of literature
CO6	Understand the different steps in research process
CO7	Able to select a good research question based on the criteria of good research
CO8	Understand the components of thesis and able to write a thesis/report
CO9	Understand the basic ideas of error measurement
CO10	Define and distinguish various types of errors
CO11	Able to estimate uncertainty in measurements and judge whether our measurements are consistent with standard values
CO12	Familiar with natural hazards and disasters
CO13	Understand the impact of climate change on natural disasters
CO14	Understand the primary steps in pre disaster and post disaster activity
CO15	Familiar with research innovations for disaster risk reduction
C016	Able to manage public health during disasters
CO17	Able to know the management of radiation emergency

PY1543-ELECTRONICS

Objective	To create awareness among students on various ethical issues involved in day-to-day journalism and provide a thorough understanding on the legal frame work within which mass media functions in India.
COURSE OUTCOMES	
CO1	Describe semiconductor properties in different diodes
CO2	Explain the applications of different junction diodes
CO3	Distinguish different feedback networks
CO4	Design single stage transistor amplifiers, oscillators and operational amplifiers.
CO5	Explain the working of special devices, FET, MOSFET, UJT
CO6	Understand the concept of modulation
CO7	Distinguish power amplifiers from small signal amplifiers

PY1544-ATOMIC & MOLECULAR PHYSICS

COURSE OUTCOMES	
CO1	Recall the basics of atom model and draw the energy level diagram of hydrogen spectrum and correlate Classical and Quantum mechanics through Bohr's correspondance principl
CO2	Visualise the spin orbit interaction through coupling schemes
CO3	Predict and explain the atomic configuration of atoms using Pauli's exclusion principle
CO4	Sketch the allowed optical and hyperfine spectra and understand the effect of external fields on the spectra of atoms
CO5	Develope ideas regarding production, properties classification and importance of x-rays and explore structure and elemental composition using x-rays
CO6	Understand and sketch the possible energy levels and transition of molecules and relate the molecular energy spectrum with the symmetry of the molecule
CO7	Elucidate the relation of allowed energy levels and chemical environment and it's spectrum of atoms through resonance spectroscopic technique

OPEN COURSES OFFERED BY THE DEPT. PHYSICS IN FIFTH SEMESTER

PY1551.1. BIO PHYSICS

PY 1551.2 ASTRONOMY AND ASTROPHYSICS

PY 1551.3- APPLIED PHYSICS(54HOURS)

PY1551.5. ENERGY PHYSICS

SEMESTER VI

PY 1641 SOLID STATE PHYSICS	
COURSE OUTCOMES	
CO1	Able to illustrate the concepts of unit cell and lattice of crystals
CO2	Able to discuss diffraction of X rays by crystals and to demonstrate its experimental techniques
CO3	Learn to explain crystal bonding
CO4	Able to describe and evaluate mechanical, electrical and magnetic properties of metals
CO5	Learn to discuss various electron models and band theories of conductors, semiconductors and insulators
CO6	Able to illustrate the concepts of unit cell and lattice of crystals
CO7	Learn to discuss and evaluate dielectric properties of materials
CO8	Able to interpret optical phenomena in dielectrics
CO9	Able to discuss types of magnetic properties of materials
CO10	Able to formulate theories regarding different magnetic properties of matter
CO11	Learn to explain different physical characteristics of superconductors
CO12	Able to illustrate theoretical formulation of superconductors

PY 1642 NUCLEAR AND PARTICLE PHYSICS	
COURSE OUTCOMES	
CO1	General properties of nucleus and concept of binding energy and nuclear forces.
CO2	Various nuclear models
CO3	Natural radioactivity, alpha decay, beta decay, positron emission ,electron capture etc.
CO4	Nuclear reactions, its types ,Q –value of a nuclear reaction
CO5	Particle accelerators, Nuclear fission, Nuclear fusion and the source of stellar energy

CO6	Fundamental particles and their properties.

PY1643- CLASSICAL AND MODERN OPTICS	
COURSE OUTCOMES	
CO1	Review the principle of superposition, Explain interference, Produce interference by division of amplitude and division of wavefront, classification of fringes, Determine optical flatness
CO2	Distinguish between Fresnel and Fraunhofer diffraction ,Demonstrate single slit and double slit Diffraction, Identify plane transmission grating and explain resolving power of a grating
CO3	Explain Dispersion and Demonstrate Dispersion
CO4	Describe Polarization, Classification, Produce and Analyze different types.
CO5	Recall the applications of Laser, Describe the conditions to obtain Laser, Analyze different types of Lasers, Define Non Linear Optics and extend the ideas to Second Harmonic Generation
CO6	Classify different types of optical fibres, Employ Optical fibre in different Applications, Construct a model of an effective Fibre optic communication system
CO7	Underline the basis of Holography, classify different types of Holograms, Discover its application in modern world

PY1644-DIGITAL ELECTRONICS AND COMPUTER SCIENCE	
COURSE OUTCOMES	
CO1	Understand the different number system and their mathematical operations.
CO2	Understand boolean algebra and logic gates
CO3	Analyze Karnaugh's map
CO4	Analyze the arithmetic and sequential circuits.
CO5	Differentiate between software and hardware
CO6	Get a deep knowledge of various memories used in computer.
CO7	Be trained in programming C++ language
CO8	Attain the basic knowledge about the internal architecture and addressing modes of intel 8085 microprocessor.

ELECTIVE COURSES OFFERED BY THE DEPT. OF PHYSICS IN SIXTH SEMESTER

PY1661.1 ELECTRONIC INSTRUMENTATION
PY1661.2. SPACE SCIENCE
PY1661.3. PHOTONICS
PY 1661.4: NANO SCIENCE AND TECHNOLOGY
PY1661.5. COMPUTER HARDWARE & NETWORKING

BSC PHYSICS (CORE) WITH MATHEMATICS AND CHEMISTRY AS COMPLEMENTARY COURSES

SEMESTER I

AUPY121: BASIC MECHANICS AND PROPERTIES OF MATTER

Total Teaching Hours: 36 Number of Lecture Hours/Week: 2

Max. Marks: 80 Credits: 2

Course Outcomes

CO No.	Course Outcomes *Students who complete this course will be able to*	Cognitive Level	PSO No.
CO1	Analyse the moment of inertia of rigid bodies of different geometry and their role in machine parts	An, U	PSO1, PSO2
CO2	Analyse the theory of mechanical oscillations and their significance in wave propagation which is a mode of energy transfer	An, U	PSO3, PSO7
CO3	Understand the theory and experimental procedures to determine the surface tension and viscosities of liquids	U	PSO1, PSO8
CO4	Evaluate the importance of elastic properties of materials in designing bridges and girders	E	PSO8
CO5	Apply the principle and theory of mechanics on practical applications	Ap	PSO8, PSO9
CO6	Evaluate the errors in experimental measurements and can suggest methods to reduce them	E	PSO6

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

SEMESTER 1 (CHEMISTRY MAIN)

AUPY131.2b: ROTATIONAL DYNAMICS AND PROPERTIES OF

MATTER

Total Teaching Hours: 36 Number of Lecture Hours/Week: 2

Maximum Marks: 80 Credits: 2

Course Outcomes

CO No.	**Course Outcomes** ***Students who complete this course will be able to***	**Cognitive Level**	**PSO No.**
CO1	Explain concepts of rotational dynamics of rigid bodies and their applications in bodies having different shape	U, R	PSO1, PSO3
CO2	Understand the basics of simple harmonic motion and mechanical waves and their applications	U, Ap	PSO1, PSO3
CO3	Understand the concepts of moduli of elasticity and applications	U, Ap, E	PSO4, PSO5
CO4	Explain the properties of fluids such as surface tension and viscosity and their applications with examples	U, Ap	PSO1

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

SEMESTER 1 (MATHEMATICS MAIN)

AUPY131.2c: MECHANICS AND PROPERTIES OF MATTER

Total Teaching Hours: 36 Number of Lecture Hours/Week: 2

Max Marks: 80 Credits: 2

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be able to*	**Cognitive Level**	**PSO No.**
CO1	Explain concepts of rotational dynamics of rigid bodies and their applications in bodies having different shape	U, R	PSO1, PSO3
CO2	Understand the basics of simple harmonic motion and mechanical waves and their applications	U, Ap	PSO1, PSO3
CO3	Understand the concepts of moduli of elasticity and applications	U, Ap, E	PSO4, PSO5
CO4	Explain the properties of fluids such as surface tension and viscosity and their applications with examples	U, Ap	PSO1

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

SEMESTER II

AUPY241: HEAT AND THERMODYNAMICS

Total Teaching Hours: 36 Number of Lecture Hours/Week: 3

Max. Marks: 80 Credits: 2

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be able to*	**Cognitive Level**	**PSO No.**
CO1	Differentiate the different modes of heat transfer in thermal systems	U, An	PSO4
CO2	Analyse the heat transfer phenomena in connection with global warming	An	PSO8
CO3	Understand the laws of thermodynamics and thermodynamic processes	U	PSO1, PSO8
CO4	Apply the concepts of heat engines in reducing energy loss and to increase its efficiency	Ap	PSO7
CO5	Familiarize the concepts of entropy to appreciate the evolution of universe	U	PSO7, PSO8
CO6	Identify the different types of transitions in thermal systems	U, Ap	PSO5

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

SEMESTER 2 (CHEMISTRY MAIN)

AUPY231.2b. THERMAL PHYSICS

Total Teaching Hours: 36 Number of Lecture Hours/Week: 2

Max Marks: 80 Credits: 2

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be able to*	**Cognitive Level**	**PSO No.**
CO1	Understand the basics of diffusion	U	PSO1
CO2	Understand the concepts of heat conduction and radiation	U	PSO5, PSO8

CO3	Understand the different heat engines starting from Carnot's engine	U	PSO5
CO4	Understand the concept of entropy	U	PSO1, PSO8

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

SEMESTER 2 (MATHEMATICS MAIN) AUPY231.2c: HEAT AND THERMODYNAMICS

Total Teaching Hours: 36 Number of Lecture Hours/Week: 2

Maximum Marks: 80 Credits: 2

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be able to*	**Cognitive Level**	**PSO No.**
CO1	Understand the concepts of heat conduction and radiation	U	PSO5, PSO8
CO2	Understand the different heat engines starting from Carnot's engine	U	PSO5
CO3	Understand the concept of entropy	U	PSO1, PSO8

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

SEMESTER III

AUPY341: ELECTRODYNAMICS

Total Teaching Hours: 54 Number of Lecture Hours/Week: 3

Max. Marks: 80 Credits: 3

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be ableto*	**Cognitive Level**	**PSO No.**
CO1	Compare the electrostatic fields due to chargesand that in a matter	U, An	PSO1, PSO2

CO2	Compare the properties of electromagnetic waves in vacuum, matter and conductors	U, An	PSO8
CO3	Analyse the growth and decay of transient currents in different electrical circuits	An	PSO1, PSO7
CO4	Compare the properties of different ac circuits	An	PSO5
CO5	Understand the principle and working of various ac bridges	U, Ap	PSO4, PSO3
CO6	Applydifferent techniques for calculatingpotential	Ap	PSO1, PSO2

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

SEMESTER 3 (CHEMISTRY MAIN) AUPY331.2b: OPTICS, MAGNETISM AND ELECTRICITY

Total Teaching Hours: 54 Number of Lecture Hours/Week: 3

Maximum Marks: 80 Credits: 3

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be able to*	**Cognitive Level**	**PSO No.**
CO1	Differentiate the optical phenomena like interference and diffraction	An, Ap	PSO1, PSO4
CO2	Explain the principle behind the experiments like Newton's rings, air wedge and diffraction grating	U	PSO2, PSO3
CO3	Understand the basics of polarization and the phenomenon of optical activity	U	PSO8
CO4	Get an idea about half wave plate, quarter wave plate, elliptically and circularly polarized light	An	PSO8
CO5	Understand the basic principles of laser and optical fiber	U	PSO17
CO6	Attain knowledge on the basics of magnetic properties	U, R	PSO8
CO7	Understand the theory of magnetism	U	PSO8
CO8	Explain the production of ac and its characteristics and also about ac circuits	U, An	PSO8

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

SEMESTER 3 (MATHEMATICS MAIN) AUPY331.2c: OPTICS, MAGNETISM AND ELECTRICITY

Total Teaching Hours for Semester: 54 Number of Lecture Hours/Week: 3

Maximum Marks: 80 Credits: 3

Course Outcomes

CO No.	Course Outcomes *Students who complete this course will be able to*	Cognitive Level	PSO No.
CO1	Differentiate the optical phenomena like interference and diffraction	An, Ap	PSO1, PSO4
CO2	Explain the principle behind the experiments like Newton's rings, air wedge and diffraction grating	U	PSO2, PSO3
CO3	Understand the basics of polarization and the phenomenon of optical activity	U	PSO8
CO4	Get an idea about half wave plate, quarter wave plate, elliptically and circularly polarized light	An	PSO8
CO5	Understand the basic principles of laser and optical fiber	U	PSO17
CO6	Attain knowledge on the basics of magnetic properties	U, R	PSO8
CO7	Understand the theory of magnetism	U	PSO8
CO8	Explain the production of ac and its characteristics and also about ac circuits	U, An	PSO8

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

SEMESTER IV

AUPY441: CLASSICAL AND RELATIVISTIC MECHANICS

Total Teaching Hours: 54 Number of Lecture Hours/Week: 3

Max. Marks: 80 Credits: 3

Course Outcomes

CO No.	Course Outcomes *Students who complete this course will be ableto*	Cognitive Level	PSO No.
CO1	Explain the conservation of linear momentum,angular momentum and energy on the basis oflinear uniformities and rotational invariance ofspace and homogeneity of flow of time	U, R	PSO1,PSO8, PSO9
CO2	Recognize the theory of motion in central force field extending up to the explanation of Kepler's laws of planetary motion	U, R	PSO8,PSO9

CO3	Compare the Lagrangian, Hamiltonian and Newtonian approaches in mechanical systems	An	PSO16
CO4	Differentiate the different types of frames ofreferences	An, Ap	PSO2,PSO8
CO5	Understand the behavior of objects that travel with a velocity comparable to that of light in vacuum	U	PSO9

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

SEMESTER 4 (MATHEMATICS MAIN) AUPY431.2c: MODERN PHYSICS AND ELECTRONICS

Total Teaching Hours: 54 Number of Lecture Hours/Week: 3

Maximum Marks: 80 Credits: 3

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be able to*	**Cognitive Level**	**PSO No.**
CO1	Explain the basic features of Bohr atom model, Bohr's correspondence principle, vector atom model, various quantum numbers, Pauli's exclusion principle, etc.	An	PSO1
CO2	Understand the basic properties of nucleus like charge, mass, spin, magnetic moment binding energy and packing fraction	U	PSO1
CO3	Discuss the basics of radioactivity	U	PSO1
CO4	Explain Planck's hypothesis, quantum principles, Schrodinger equation	U	PSO12
CO5	Solve the Schrodinger equation for a particle in a potential box	Ap	PSO12
CO6	Design and construct simple electronic circuits using diodes and transistors	Ap	PSO15
CO7	Construct a CE amplifier and explain its working	Ap	PSO15
CO8	Construct logic gates and explain its working	Ap	PSO15

CO9	Discuss Boolean algebra and simplification of Boolean expressions	U, R	PSO15

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

SEMESTER V

AUPY 541: STATISTICAL MECHANICS, BIOPHYSICS, IPR AND ARTIFICIAL INTELLIGENCE

Total Teaching Hours: 72 Number of Lecture Hours/Week: 4

Max. Marks: 80 Credits: 4

Course Outcomes

CO No.	Course Outcomes *Students who complete this course will be ableto*	Cognitive Level	PSO No.
CO1	Differentiate classical statistics and quantum statistics	U	PSO1, PSO12
CO2	Apply the laws of thermodynamics in biological systems	Ap	PSO11
CO3	Understand the theory and working of different biomedical instruments	U	PSO11
CO4	Distinguish and explain various forms of IPRs	U	PSO10
CO5	Identify the significance of practice and procedureof Patents	U, R	PSO10
CO6	Get an insight into the topic of artificial intelligence	U	PSO10

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

AUPY542: QUANTUM MECHANICS

Total Teaching Hours: 72 Number of Lecture Hours/Week: 4

Max. Marks: 80 Credits: 4

Course Outcomes

CO No.	Course Outcomes *Students who complete this course will be ableto*	Cognitive Level	PSO No.
CO1	Apply the postulates of quantum mechanics to predict the outcome of measurement on model systems	Ap	PSO1, PSO2, PSO12
CO2	Apply principles of quantum mechanics to calculate observables on known wave functions	Ap	PSO4, PSO12

CO3	Understand the mathematical foundations of quantum mechanics	U, R	PSO4, PSO12
CO4	Solve the Schrodinger equation for simple configurations	E, Ap	PSO5, PSO12

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

AUPY543 ELECTRONICS

Total Teaching Hours: 72 No. of Lecture Hours/Week: 4

Max. Marks: 80 Credits: 4

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be able to*	**Cognitive Level**	**PSO No.**
CO1	Execute the analysis of Thevenin's and Norton's theorems, Maximum power transfer theorem and Superposition theorem	An, Ap	PSO2, PSO3, PSO15
CO2	Design and construct circuits using different types of diodes and filter circuits	Ap, E	PSO3, PSO15
CO3	Design and construct transistor circuits as voltage amplifiers, power amplifiers and oscillators	Ap, E	PSO3, PSO15
CO4	Interpret the feedback circuits and can construct and study the characteristics of different types of oscillators	An	PSO7, PSO15
CO5	Describe the principles of modulation, different types of modulation and their techniques	U	PSO15
CO6	Design and construct circuits using special devices like JFET, MOSFET, UJT and SCR	U, Ap	PSO5, PSO15
CO7	Acquire basic ideas on differential and operational amplifiers	U	PSO7, PSO15

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

AUPY544: ATOMIC AND MOLECULAR PHYSICS

Total teaching hours: 72 Number of lecture hours/week: 4

Maximum mark: 80 Credit: 4

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be ableto*	**Cognitive Level**	**PSO No.**
CO1	Get knowledge about the different atomic models, their significances, properties, merits and demerits	U	PSO2, PSO13

CO2	Determine the crystal structure and particle size using the X-ray diffraction method	Ap, E	PSO5
CO3	Apply the basic knowledge of classical and quantum mechanics at the atomic and molecular level	Ap	PSO13
CO4	Understand the fine structure of spectral lines	U	PSO13
CO5	Compare the principles and properties of NMR, ESRand Mossbauer spectroscopy	U	PSO14

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

AUPY581: OPEN COURSES AUPY 581.a: APPLIED PHYSICS

Total Teaching Hours: 54 Number of Lecture Hours/Week: 3

Max Marks: 80 Credits: 2

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be ableto*	**Cognitive Level**	**PSO No.**
CO1	Understand the principles of working and the specifications of the different electronic equipments	U	PSO15 PSO17
CO2	Get a thorough knowledge of X-rays and lasers and their applications	U	PSO17
CO3	Get a thorough knowledge of holograms, construction and reconstruction	U	PSO17
CO4	Understand the basics of fibre opticcommunication	U	PSO15

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

AUPY581.b: ASTRONOMY AND ASTROPHYSICS

Total Teaching Hours: 54 Number of Lecture Hours/Week: 3

Max. Marks: 80 Credits: 2

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be ableto*	**Cognitive Level**	**PSO No.**
CO1	Explain the historical developments in astronomyand astrophysics	U, R	PSO2, PSO8
CO2	Assess the various theories on origin of the Universe and celestial bodies in the sky	U, R	PSO2, PSO5

CO3	Explain the life of stars, their birth and death leadingto white dwarfs, neutron stars, black holes, nova and supernova	U, R	PSO1, PSO2
CO4	Get a thorough knowledge on the Solar system	U	PSO1

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

AUPY581.c: BIOPHYSICS

Total Teaching Hours: 54 Number of Lecture Hours/Week: 3

Max. Marks: 80 Credits: 2

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be ableto*	**Cognitive Level**	**PSO No.**
CO1	Explain the physics of audition and vision	U	PSO11
CO2	Get a knowledge of biological systems	U	PSO11
CO3	Familiarise with the biological measuring instruments and bioinformatics	U, An	PSO5, PSO11
CO4	Familiarise the biological application of radiation physics	U, An	PSO8, PSO11

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

SEMESTER VI

AUPY641: SOLID STATE PHYSICS

Total Teaching Hours: 72 Number of Lecture Hours/Week: 4

Max. Marks: 80 Credits: 4

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be ableto*	**Cognitive Level**	**PSO No.**
CO1	Identify the different types of crystal systems and the symmetry operations involved	U, An	PSO20
CO2	Identify the crystal structure using X-ray andneutron diffraction techniques	U, An	PSO1, PSO2
CO3	Explain the concept of conduction in metals and free electron model	An, Ap	PSO4

CO4	Differentiate conductors, insulators and semiconductors based on band theory	An	PSO8
CO5	Account for what the Fermi surface is and how it can be measured	U, E	PSO5
CO6	Understand the theory of properties of dielectricand magnetic materials	U	PSO1, PSO4
CO7	Understand the phenomenological theory and properties of superconductors	U	PSO1, PSO4

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

AUPY642: NUCLEAR AND PARTICLE PHYSICS

Total Teaching Hours: 72 Number of Lecture Hours/Week: 4
Max Marks: 80 Credits: 4

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be able to*	**Cognitive Level**	**PSO No.**
CO1	Explain the general properties of nuclei, concept of binding energy and nuclear forces	U, R	PSO4
CO2	Analyse the properties of nuclei based on the different nuclear models	An	PSO7
CO3	Make quantitative estimates of phenomena involving radioactivity and of nuclear reactions	Ap, E	PSO4
CO4	Discuss the principle, construction and working of various types of nuclear radiation detectors and accelerators work	U	PSO1, PSO3
CO5	Estimate the energy release through nuclear fission and fusion reactions in reactors	E	PSO4
CO6	Explain the different phenomena involving cosmic rays and elementary particles	U	PSO8

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

AUPY643: CLASSICAL AND MODERN OPTICS

Total Teaching Hours: 72 Number of Lecture Hours/Week: 4
Max. Marks: 80 Credits: 4

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be able to*	**Cognitive Level**	**PSO No.**
CO1	Explain phenomena like interference, diffraction, dispersion and polarization	U	PSO2, PSO4
CO2	Compare principles and theory of Fresnel and Fraunhofer diffraction	U, An	PSO3, PSO4

CO3	Distinguish between normal and anomalous dispersion	An	PSO8
CO4	Understand the differences between step index and graded index fibres, single mode and multimode fibres	U	PSO17
CO5	Attain knowledge on principle of holography andits applications	U	PSO17
CO6	Acquire good knowledge on different light sources including lasers	U	PSO20

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

AUPY644: DIGITAL ELECTRONICS AND COMPUTER SCIENCE

Total Teaching Hours: 72 No. of Lecture Hours/Week: 4

Max Marks: 80 Credits: 4

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be able to*	**Cognitive Level**	**PSO No.**
CO1	Use binary and hexadecimal number systems and their mathematical operations	U, An	PSO1
CO2	Understand Boolean algebra and logic gates	U, An, Ap	PSO1
CO3	Analyse arithmetic and sequential digital circuits	An	PSO15
CO4	Use 8085 microprocessor for various operations	U, Ap	PSO3
CO5	Write C++ programs	Ap, C	PSO18
CO6	Familiarize Object Oriented Programming in C++	AP, C	PSO18

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

AUPY691: ELECTIVE COURSES

AUPY691.a: COMPUTER HARDWARE AND NETWORKING

Total Teaching Hours: 54 Number of Lecture Hours/Week: 3

Max Marks: 80 Credits: 2

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be ableto*	**Cognitive Level**	**PSO No.**
CO1	Identify the different types of hardwares	U, An	PSO17
CO2	Discuss the classification of memory devices	U	PSO17
CO3	Differentiate the different types of input/outputdevices	U, An	PSO15 PSO17
CO4	Familiarise with different types of viruses andvaccines	U	PSO2

CO5	Get knowledge about the different computer networking technologies	U, An	PSO17
CO6	Get a knowledge of the different protocols and IP addresses	U	PSO17 PSO20

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

AUPY691.b: ELECTRONIC INSTRUMENTATION

Total Teaching Hours: 54 Number of Lecture Hours/Week: 3
Max Marks: 80 Credits: 2

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be able to*	**Cognitive Level**	**PSO No.**
CO1	Use the basic measuring devices like ammeter, voltmeter etc. and their digital versions, effectively	U, Ap	PSO3, PSO17
CO2	Use oscilloscopes for measurements	Ap	PSO3
CO3	Use transducers and wave generators	Ap	PSO3

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

AUPY691.c: NANOSCIENCE AND TECHNOLOGY

Total Teaching Hours: 54 Number of Lecture Hours/Week: 3

Max Marks: 80 Credits: 2

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be able to*	**Cognitive Level**	**PSO No.**
CO1	Explain the historical background and natural demonstrations of nanoscience and nanotechnology	U	PSO2, PSO20
CO2	Explain the nanoscale paradigm in terms of properties at the nanoscale dimension	U	PSO2
CO3	Understand the basic interdisciplinary nature of nanotechnology (physics, chemistry, electronic and mechanical properties, bio-nanotechnology)	U	PSO2
CO4	Synthesis materials of nano dimension by various methods of preparation	Ap	PSO2, PSO3
CO5	Characterise the prepared materials using different methods	An	PSO3, PSO5

CO6	Understand the basic principles of nanoscience and nanoscale engineering	U	PSO2, PSO20
CO7	Understand the concepts in materials science, chemistry, physics, biology and engineering to the field of nanotechnology	U	PSO2
CO8	Familiarize the processing and characteristics ofcarbon nanostructures	U	PSO2
CO9	Understand thoroughly the application of nanotechnology in industry	U	PSO20

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

AUPY691.d: FIBER OPTICS TECHNOLOGY

Total Teaching Hours: 54 Number of Lecture Hours/Week: 3

Max Marks: 80 Credits: 2

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be able to*	**Cognitive Level**	**PSO No.**
CO1	Gain knowledge on various types of optical fiber cables	U	PSO17
CO2	Familiarise the different modulation techniques	U, R	PSO15
CO3	Familiarise the fiber cabling tools	U	PSO17
CO4	Design different types of fiber optic networks and its components	Ap	PSO17
CO5	Get hands on experience on fusion splicing, cable termination, light source-power meter testing, OTDR testing etc.	Ap	PSO17

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

AUPY691.e: DATA SCIENCE

Total Teaching Hours: 54 Number of Lecture Hours/Week: 3

Max Marks: 80 Credits: 2

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be able to*	**Cognitive Level**	**PSO No.**

CO1	Understand the basics of data science and its different applications	U	PSO10
CO2	Get a better insight to the concepts of statistics and probability	U, R	PSO10
CO3	Get an introduction to data analysis related to the operations of human brain	U	PSO10 PSO17
CO4	Get the analytical skill to a career as data analyst	U, An	PSO17
CO5	Familiarise in R programming	U	PSO18

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

AUPY691.f: COMPUTER GRAPHICS

Total Teaching Hours: 54 Number of Lecture Hours/Week: 3

Max Marks: 80 Credits: 2

Course Outcomes

CO No.	**Course Outcomes** *Students who complete this course will be able to*	**Cognitive Level**	**PSO No.**
CO1	Understand the basics of computer graphics	U	PSO17
CO2	Prepare the algorithms for different types of figures	Ap	PSO17
CO3	Observe the graphs in different perspective	An	PSO17
CO4	Understand the techniques of digital image processing	U	PSO17

R: Remember, U: Understand, Ap: Apply, An: Analyse, E: Evaluate, C: Create

AUFR 111.1 / AUFR 111.2: Communication Skills in French

(First Semester B.A/ B.Sc.)

Total Teaching Hours for Semester: 72	**No of Lecture Hours/Week:4**
Max Marks: 80 marks	**Credits:3**

Course Outcomes

Learners will be able:

- **CO1: to develop the basic communication skills in French**
- **CO2: to write simple direct sentences in French**
- **CO3: to send sms/ short e mails in French**
- **CO4: to discover a foreign culture through the French Language**
- **CO5: to familiarize the students with French for basic communication and functions in everyday situations**

AUFR 211.1 / AUFR 211.2: French Grammar and Communication

(Second Semester B. A/ B.Sc.)

Total Teaching Hours for Semester: 72	**No of Lecture Hours/Week:4**
Max Marks:80 marks	**Credits:3**

Course Outcomes

Learners will be able:

- **CO1: to translate short sentences from French to English and vice-versa**
- **CO2: to do interpretation of small conversations**
- **CO3: to locate and be familiar with the French Cities**
- **CO4: to do correspondences in French**
- **CO5: to understand the basic rules and theories of Translation.**

AUFR 311.1 / AUFR 311.2: French Culture and Civilization

(Third Semester B.A. / B. Sc.)

Total Teaching Hours for Semester: 90	**No of Lecture Hours/Week:5**
Max Marks:80 marks	**Credits:4**

Course Outcomes

Learners will be able:

- CO1: to compare and contrast cultural practices as they relate to French and Indian culture
- CO2: to state their opinions through writing and provide some support for their ideas.
- CO3: to understand the cultural aspects of the day-to-day life in France
- CO4:to familiarize the students with the French culture and civilization
- CO5: to comprehend, compare and understand better the civilization of one's native country.

AUFR 411.1 / AUFR 411.2: French Literature and Translation

(Fourth Semester B.A. /B. Sc.)

Total Teaching Hours for Semester: 90	**No of Lecture Hours/Week:5**
Max Marks: 80 marks	**Credits:4**

Course Outcomes

- CO1: The aim of the course is to introduce the students to the aesthetic cultural and social aspects of literary appreciation.
- CO2: To introduce the students to the world of French Literature.
- CO3: Toenhance literary sensibility
- CO3: to have an idea of the growth and development of the French literature.
- CO4: to compare the literary life in France with that of their home country.
- CO5: to have an awareness of the changing concepts of the French society in terms of literature and culture.

Syllabus for Additional Language FRENCH

(B.Com)

AUFR 111.3: COMMUNICATIVE AND COMMERCIAL FRENCH - I

(First Semester B. Com.)

Total Teaching Hours for Semester: 72 | **No of Lecture Hours/Week:4**

Max Marks: 80 marks | **Credits:4**

Course Outcomes

Learners will be able:

- **CO1: to develop the basic communication skills in French**
- **CO2: to write simple direct sentences in French**
- **CO3: to send sms/ short e mails in French**
- **CO4: to discover a foreign culture through the French Language**
- **CO5: to familiarize the students with French for basic communication and functions in everyday situations**

AUFR 211.3: COMMUNICATIVE AND COMMERCIAL FRENCH - II

(Second Semester B. Com.)

Total Teaching Hours for Semester: 72	**No of Lecture Hours/Week: 4**

Max Marks: 80 marks	Credits: 4

Course Outcomes

Learners will be able:

- **CO1: to translate short sentences from French to English and vice-versa**
- **CO2: to do interpretation of small conversations**
- **CO3: to locate and be familiar with the French Cities**
- **CO4: to do correspondences in French**
- **CO5: to understand the basic rules and theories of Translation.**

Syllabus for Additional Language FRENCH

(B.A. / B.Sc. Career Related)

AUFR 111.4: Professional French - I (First Semester B.A/ B.Sc. Career Related)	
Total Teaching Hours for Semester: 90	No of Lecture Hours/Week: 5
Max Marks: 80 marks	Credits: 3
Course Outcomes.	

AUFR 211.4: Professional French - II (Second Semester B. A/ B.Sc. Career Related)	
Total Teaching Hours for Semester: 90	No of Lecture Hours/Week:5
Max Marks: 80 marks	Credits: 3

Course Outcomes

Learners will be able:

- **CO1: to translate short sentences from French to English and vice-versa**
- **CO2: to do interpretation of small conversations**
- **CO3: to locate and be familiar with the French Cities**
- **CO4: to do correspondences in French**
- **CO5: to develop an awareness of cultural difference, as well as social and economic factors that affect business in the French-speaking countries.**

French (MTTM)

(Second Semester)

Total Teaching Hours for Semester: 80	**No of Lecture Hours/Week: 6**
Max Marks: 75 marks	**Credits:**

Aim: The course is intended to familiarize the students with the French culture and civilization giving importance to conversation and vocabulary related to the travel and tourism industry.

Course Outcomes:

Learners will be able:

- CO1: to develop the basic communication skills in French
- CO 2: to familiarize the students with the French language and culture
- CO 3: to comprehend, converse and write simple day to day activities in French with an emphasis to tourism related situations
- CO 4: to acquaint the students with the important touristic places and monuments in France.
- CO 5: to familiarize the students with French for basic communication and functions in everyday situations

AUHN 111.1/AUHN111.2 Fiction - Novel and Short Stories	
Total Teaching Hours for Semester: 72	**No of Lecture Hours/Week:4**
Max Marks:80	**Credits:3**
Aim of the Course/ Objectives The aim of the course is to guide the students to the world of Hindi Fiction (Novel & Short Stories). To develop the capacity of creative process and communicative skills. **Course Outcomes**	
The course includes detailed study of Novel and Short Stories. **CO1:** Guiding the students to the world of Hindi Fiction (Novel and Short Stories). **CO2:** Appreciating the literary and stylistic elements of Hindi Novel. **CO3:** Enriching the students to communicate in the language without inhibitions.	

AUHN 211.1/AUHN 211.2 Drama, Theatre Application and One Act Plays	
Total Teaching Hours for Semester: 72	**No of Lecture Hours/Week:4**
Max Marks:80	**Credits:3**
Aim of the Course/ Objectives The aim of the course is to appreciate and analyze the dramatic elements literature as well Theatre. To understand the distinct features of Hindi One Act Plays. **Course Outcomes**	
The course includes study of drama and its theatre aspects one act plays. **CO1:** Guiding the students to the world of Hindi Drama. **CO2:** Appreciating the literary and stylistic elements of Hindi Drama and One Act Plays. **CO3:** students will communicate in Hindi language without inhibitions.	

AUHN 411.1/AUHN 411.2 **Poetry and Indian Culture**

AUHN311.1/AUHN 311.2 Grammar,Communicative Hindi and Information Technology	
Total Teaching Hours for Semester: 90	**No of Lecture Hours/Week:5**
Max Marks:80	**Credits:4**
Aim of the course/Objectives To understand Hindi Grammar and to update and expand basic informatic skills through Hindi. **Course Outcomes**	
CO1**:** understand the theory and practice of Hindi grammar and to enable students translate from Hindi to English and vice versa. CO2: students will be able to understand the scope of this language. CO3: develop the communication skills and inculcating values of communication among the students. CO4: They can realize the possibilities of Information Technology and Hindi	

Total Teaching Hours for Semester: 90	**No of Lecture Hours/Week:5**
	Credits:4
Aim of the Course /Objectives To enrich the knowledge of history and to familiarize with the important events of Indian culture. **Course Outcomes**	
CO1: will achieve the knowledge of ancient and modern Hindi poetry. **CO2:** student can find the aesthetic aspects of literary appreciation and analysis through this. **CO3:** they can realize and understand the human values for excellence in Hindi literature. CO4: enrich the knowledge of History and get familiarized with the event of Indian culture.	

AUHN111.3 **Prose, Translation and Technical Terminology**	
Total Teaching Hours for Semester: 72	**No of Lecture Hours/Week:4**
Max Marks:80	**Credits:4**
Aim of the Course/Objectives Aim of the course is to understand and appreciate Hindi prose .For communicative skills in Hindi and English through Translation .To familiarize the Technical terms used in offices. **Course Outcomes**	**Teaching Hours:42**
The course includes chapters on prose ,translation practices from English to Hindi and Hindi to English and also Technical Terms of Hindi and English. **CO1** Familiarizing students the values of short stories, biography ,sketch, essay etc. **CO2**. Developing better language through translation practices and the qualities of a translator. **CO3**. Encouraging students to communicate in Hindi. **CO4.** Familiarizing official correspondence in Hindi.	
AUHN211.3 **Poetry, Official Correspondence and Communications**	

Total Teaching Hours for Semester: 72	**No of Lecture Hours/Week:4**
Max Marks:80	**Credits:4**
Aim of the Course/Objectives Aim of the course is to sensitize the students to the aesthetic of literary appreciation and to introduce Hindi poetry.To familiarize the technical terms used in offices. **Course OutcomesCO1**: The students will get familiarized with Hindi poetry and Hindi literature. **CO2:** In the field of communication and media students will get enriched **CO3:** Developing communicative skills in Hindi and English. **CO4: F**amiliarizing the transformation and its formation.	

Course Details B.A / B.Sc.(Career Related)

AUHN111.4 **Prose and Script Writing in Hindi**	
Total Teaching Hours for Semester: 90	**No of Lecture Hours/Week:5**
Max Marks:80	**Credits:3**
Aim of the Course/Objectives **The aim of the course is to give general awareness in Hindi Literature and to familiarize with information of script writing the techniques and process of script writing.** **Course Outcomes**	
CO1: Understanding the cultural, social and moral values of modern Hindi prose. **CO2: Enriching the imaginative power and skill of art in Hindi** **CO3: Pondering the student in the field of script writing.**	

AUHN211.4 **Poetry and Journalism in Hindi**	
Total Teaching Hours for Semester: 90	**No of Lecture Hours/Week:5**
Max Marks:80	**Credits:3**
Aim of the Course/Objectives Aim of the course is to sensitize the students to the aesthetic of literary appreciation and to introduce Hindi poetry. Modern trends in Hindi Journalism. **Course Outcomes**	
CO1: Get familiarize with ancient and modern Hindi poets CO2: Enrich with the ideas and works in the field of Journalism CO3: Understand the vision and areas of Hindi Journalism	

BA English Language and Literature (2021 Admissions onwards)

SEMESTER I

Core Course 1: AUEN 141 Introduction to Literary Studies I

Course Outcome

CO 1: Introduce varied literary representations.

CO 2: Familiarize students with the nature and characteristics of literature.

CO 3: Discuss the nature and characteristics of literature

CO 4: Introduce two key genres of literature, poetry and drama.

CO 5: Possess a foundational understanding of poetry and drama.

Complementary Course 1: AU EN 131 Popular Literature and Culture

Course Outcome

CO 1: Encourage the student to think critically about popular literature.

CO 2: Understand the categories of the ―popular‖ and the ―canonical‖

CO 3: Identify the conventions, formulas, themes and styles of popular genres such as detective fiction, the science fiction and fantasy, and children‘s literature.

CO 4: An assessment of the literary and cultural value of popular texts

C O 5: Sensitize students to the ways in which popular fiction reflects and engages with questions of gender, identity, ethics and education.

SEMESTER II

Core Course 2: AU EN 241 Introduction to Literary Studies II

Course Outcome

CO 1: Cherish a taste for the literary among students

CO 2: Comprehend the nature and characteristics of different genres of literature.

CO 3: Detailed awareness of the two key genres of literature- fiction and non-fiction.

CO 4: Imbibe the representational possibilities of the respective genres.

CO 5: Instill a creative and critical aptitude

Complementary Course 3: AUEN 231 Art and Literary Aesthetics

Course Outcome

CO 1: The student will be able to engage with literature in a broader, educated perspective.

CO 2: The student will be able to think with greater originality and independence about the complex interrelationship between different art forms.

CO 3: The student will be trained to engage sensitively and intelligently in new readings of literature.

CO 4:The course develops an understanding of the co-relation between literature, film, music and painting and encourages ways of reading and seeing which deliver insights into literary texts.

CO 5: Initiate students to implement the multidisciplinary scope of art and literary studies.

Instructions: This course is designed to draw out the relationships between art movements and literature. In the first two modules, the texts/pieces have been chosen to be representative of the various time periods in which these movements originated, so a comparative study of both the paintings, films and the literary works is recommended. The third module discusses music as literary text and the various ways in which this is manifested

SEMESTER III

Core Course 3: AUEN 341 British Literature I

Course Outcome

CO 1: Comprehend the origins of English literature

CO 2: Understand the specific features of the particular periods

CO 3: Understand themes, structure and style adopted by early British writers

CO 4: Gain knowledge of growth and development of British Literature in relation to the historical developments

CO 5: Understand how writers use language and creativity to capture human experience through different literary forms.

Foundation Course 2: AU EN 321 Evolution of the English Language

Course Outcome:

CO 1: Knowledge of the paradigm shifts in the development of English.

CO 2: Well aware of the historical paradigm shifts in the history of English Language

CO 3: Imbibe the plural socio cultural factors that went in to the shaping of the English Language.

CO 4: Place English language in a global context.

CO5: Recognize the politics of many _Englishes‘

Complementary Course 5: AU EN 331 Narratives of Resistance Number

. Course Outcome

CO 1: Be able to identify themes of resistance in different forms and genres of literature.

CO 2: Have a sense of the various kinds of injustice related to race, ethnicity, gender etc. prevalent in society.

CO 3: Develop an idea of literature as a form of resistance to all forms of totalitarian authority.
CO 4: Understand the inter connection between various genres in manifesting resistance

CO 5: How resistance is an undeniable presence in the everyday narratives of literary and other artistic expressions.

SEMESTER IV

Core Course 4:AUEN 441 British Literature II

Course Outcome:

CO 1: Sensitize students to the changing trends in English literature in the 18th and 19th centuries and connect it with the sociocultural and political developments.

CO 2: Develop the critical thinking necessary to discern literary merit

CO 3: Be able to recognize paradigm shifts in literature

CO 4: Be able to identify techniques, themes and concerns

CO 5: Connect literature to the historical developments that shaped the English history

Core Course 5: AUEN 442 Literature of the 20th Century

Course Outcome

CO 1: Understand social, political, aesthetic and cultural transformations of early twentieth century in relation to literary texts with their specific formal features.

CO 2: Know the stylistic features of Modernism and its various literary and aesthetic movements

CO 3: Critically engage the ideas that characterise the period, especially the crisis of modernity
CO 4: Understand contemporary responses to the historical incidents that mark the period

CO 5: Understand and use critical strategies that emerged in the early twentieth century.

Complementary Course 7: AUEN431 Philosophy for Literature

COURSE OUTCOMES

CO 1: Have a diachronic understanding of the evolution of philosophy from the time of Greek masters to 20th century

CO 2: Have an awareness of the major schools of thought in western philosophy.

CO 3: Have a healthy epistemological foundation at undergraduate level that ensures scholarship at advanced levels of learning.

CO 4: Talk about some of the key figures in Philosophy.

CO 5: Analyze and appreciate texts critically, from different philosophical perspectives

SEMESTER V

Core Course 6: AU EN 541 Literature of Late 20th Century and 21st

Century Course Outcome

CO 1: Identify the various socio-cultural changes that evolved in the late modernist period

CO 2: Relate to the diverse currents of postmodern literature and its reflections in the contemporary ethos

CO 3: Assimilate the inherent multiplicities and fluidity of societal perspectives

CO 4: Develop an innate sympathy for the tragedies of Holocaust and an awareness regarding the environmental impasses threatening the modern world

CO 5: Empathise with the marginalised and comprehend their predicament

Core Course 7: AU EN 542 Postcolonial Literatures

Course Outcome

CO 1: Ability to critique colonial history

CO 2: Awareness of the socio-political contexts of colonialism and postcolonialism

CO 3: Understanding of the effects of colonialism in various nations

CO 4: Knowledge of the key terms in post-colonial thought

CO 5: Study of the race and gender dynamics in postcolonial literature

Core Course 8: AUEN 543 World Classics.

Course Outcome

CO 1: Understand the study of Classics as a means of discovery and enquiry into the formations of great literary works and how the rich imagery of these classical works continues beyond the twentieth century.

CO 2: Recognize the diversity of cultures and the commonalities of human experience reflected in the literature of the world.

CO 3: Imbibe a fair knowledge in the various Classical works from different parts of the world, at different time periods, across cultures.

CO 4: Examine oneself and one‘s culture through multiple frames of reference, including the perception of others from around the world.

CO 5: Develop and aesthetic sense to appreciate and understand the various literary works with a strong foundation in the World Classics.

Core Course 9: AU EN 544 Linguistics and Structure of the English Language

Course Outcome

CO 1: Understand the phonological and grammatical structure of English Language

CO 2: Be able to analyse actual speech in terms of the principle of linguistics

CO 3: Improve the accent and pronunciation of the language

CO 4: Introduce the students to internationally accepted forms of speech and writing in English.
CO 5: Explore the ancient linguistic tradition of India

Core Course 10: AUEN 545 Criticism and Theory

Course Outcome.

CO 1: Analyze and appreciate texts critically, from different perspectives.

CO 2: Appreciate Indian Aesthetics and find linkages between Western thought and Indian critical tradition.

CO 3: Show an appreciation of the relevance and value of multidisciplinary theoretical models in literary study.

CO 4: Demonstrate an understanding of important theoretical methodologies and develop an aptitude for critical analysis of literary works.

CO 5: Gain a critical and pluralistic understanding and perspective of life

Open Course: 1 AUEN 581 Communicative Applications in English

Course Outcome

CO 1: Learners majoring in some subject other than English will have a working knowledge of the type of English that is required in real life situations, especially the globalized workplace.

CO 2: Well trained to write clear, well-framed, polite but concise formal letters and e-mails for a variety of purposes

CO 3: Acquire some of the soft-skills that go hand in hand with English –namely, the ability to prepare for an interview and face it confidently, the ability to participate boldly a group discussion and contribute meaningfully to it, the ability to make a simple and interesting presentation of 5-10 minutes before a mixed audience on anything that they have learnt in the previous semesters of the UG programme NOTE TO COURSE INSTRUCTORS AND QUESTION PAP

SEMESTER VI

Core Course 11: AU EN 641 Gender Studies

Course Outcome

CO 1: Recognize the patriarchal bias in the formation of history and knowledge.

CO 2: Analyse the ways in which gender, race, ethnicity class, caste and sexuality construct the social, cultural and biological experience of both men and women in all societies.

CO 3: Recognize and use the major theoretical frames of analysis in gender studies

CO 4: Interrogate the social constructions of gender and the limiting of the same in to the male-female binary in its intersections with culture, power, sexualities and nationalities

CO 5: Examine gender issues in relation to the sustainable goals of development

Core Course 12: AUEN 642 Indian Writing in English

Course Outcome

CO 1: Make students aware of different aspects of colonization like cultural colonization.

CO 2: Trace the historical and literary genesis and development of Indian Writing in English

CO 3: Acquaint them with the major movements in Indian Writing in English across varied period and genres

CO 4: Address the plurality of literary and socio-cultural representations within Indian life as well as letters.

CO 5:Enhance the literary and linguistic competence of students by making them aware of how language works through literature written in the subcontinent.

Core Course 13: AU EN 643 Film Studies

Course Outcome

CO 1: Recognize the language of films and use it creatively.

CO 2: Analyze films from both technical and non-technical perspectives

CO 3: Engage questions of social justice and gender justice by critiquing representations of culture.

CO 4: Use film as a medium of communication

CO 5: Derive an interest in various careers related to film

Core Course 14: AUEN 644 20th Century Malayalam Literature in Translation

Course Outcome

CO 1: Generate knowledge about the varied milieu of the development and growth of Malayalam literature and be sensitive to its socio cultural and political implications.

CO 2: Get a basic knowledge of the literary and the non-literary works produced in Malayalam

CO 3: Discern the vibrancy of Malayalam literature

CO 4: Sense the distinctness of the socio-cultural arena in which Malayalam literature is produced

CO 5: Know the value of literature produced in regional languages and key role oftranslation in the growth of language and literature.

Elective Course 1: AU EN 691 American Literature

Course Outcome

1. Instill a sense of the ―Americanness‖ that characterizes American literature

2. Enable the students to place American literature within the corpus of world literature even while identifying its uniqueness.

3. Identify the themes and narratives particular to American literary expressions

4. Generate interest in a field of specialization

5. Enquire about the recent and more popular forms of literature.

BA ENGLISH AND COMMUNICATIVE ENGLISH (CBCSS)

SEMESTER I

Core Course 1: CG 1141 Introduction to Literary Studies

Course Outcome

CO 1: Introduce varied literary representations.

CO 2: Comprehend the nature and characteristics of literature.

CO 3: Possess a foundational understanding of literary forms and representation

Vocational Course I CG 1171 Soft Skills

Course Outcome

CO 1: Advance unique soft sills which is beneficial for a successful life and better career performances

CO 2: Increase personal, social and professional skills

CO 3: Confront their surroundings enthusiastically with confidence

Complementary Course I CG 1131 English for Specific Purposes

Course Outcome

CO 1: Understand ESP and differentiate English for General Purpose and English for Specific Purpose

CO2: Be able to speak and write English for various specific purposes

CO 3: Familiarize with the vocabulary and language of Business English, Technical English, Travel English, Medical English, Legal English, English for Logistics, BPO English

SEMESTER II

Core Course II CG 1241 British Literature I

Course Outcome

CO 1: Comprehend the origins and development of British literature and understand the specific features of the particular periods

CO 2: Understand the major concerns, structure and style adopted by early British writers

CO 3: Gain knowledge of growth and development of British Literature in relation to the historical developments

Core Course III CG 1242 Narratives of Resistance

Course Outcome

CO 1: Be able to identify themes of resistance in different forms and genres of literature and to identify injustices related to race, ethnicity, sexuality, gender etc. prevalent in society.

CO 2: Develop an idea of literature as a form of resistance to all forms of totalitarian authority.

CO 3: Understand the inter connection between various genres in manifesting resistance and how it becomes an undeniable presence in the everyday narratives of literary and other artistic expressions.

Vocational Course II CG 1271 Narratives of Social Justice and Restitution

Course Outcome

CO 1: Make students cognizant regarding pressing social issues and to apply language skills, knowledge, and social skills to identify and defend human rights violations.

CO 2: Acquire skills of social work intervention in human needs and societal issues.

CO 3: Consider the importance of law and imbibe a clear set of values which informs the social work practice

Complementary Course II CG 1231 Language for the Media

Course Outcome

CO1: Develop specific language skills for various media

CO2: Comprehend the trends and evolution of language use in media

CO3: Understand the role and use of language in the evolutionary history of medias

SEMESTER III

Foundation Course II CG 1321 Evolution of the English

Course Outcome:

CO 1: Knowledge of the paradigm shifts in the development of English.

CO 2: Imbibe the plural socio cultural factors that went in to the shaping of the English Language.

CO 3: Recognize the politics of many ‘Englishes’

Core Course IV CG 1341 British Literature II

Course Outcome

CO 1: Sensitize students to the changing trends in British literature in the 18th and 19th centuries and connect it with the sociocultural and political developments.

CO 2: Develop the critical thinking necessary to discern literary merit and to recognize paradigm shifts in literary representations.

CO 3: Connect literature to the historical developments that shaped the British history.

Core Course V CG 1342 Popular Literature

Course Outcome

CO 1: Understand the categories of the ―popular and the ―canonical

CO 2: Identify the conventions, formulas, themes and styles of popular genres such as detective fiction, the science fiction and fantasy, and children's literature and assess the literary and cultural formation of the popular.

CO 3: Sensitize students to the ways in which popular fiction reflects and engages with questions of gender, identity, ethics and education.

Vocational Course III CG 1371 Translation Studies

Course Outcome

CO1: To appreciate Translation Studies as an independent academic discipline

CO2: To critically reflect on the process of translation and its types

CO3: To build a genuine interest and to focus on a career in the field of translation

Complementary Course III CG 1331 Environment Studies and Disaster Management

Course Outcome:

CO1: understand environmental crises and disaster management situations

CO2: take lead in spreading environmental values and creating awareness among the public

CO 3: respond in a better way to a natural calamity or disaster and articulate environmental concerns using appropriate vocabulary.

SEMESTER IV

Core Course VI CG 1441 20th Century World Literature

Course Outcome

CO 1: Get acquainted with varied socio-cultural and political experiences and expressions.

CO 2: Gain a theoretical grounding to read literatures in English from different regions and accept the fact that world literature is literature that gains in translation.

CO 3: Learn to avoid homogenising cultures and languages and protect the diversity of languages and cultures present in literary works.

Core Course VII CG 1442 Twentieth Century Malayalam Literature in Translation

Course Outcome

CO 1: Discern the varied milieu of the development and growth of Malayalam literature and be sensitive to its socio cultural and political implications.

CO 2: Get a basic knowledge of the literary and the non-literary works produced in Malayalam and the politics of its plurality.

CO 3: Sense the distinctness of the socio-cultural- political arena in which Malayalam literature developed

Vocational Course IV CG 1471 Language Editing and Publishing

Course Outcome:

CO 1: Students must be able to identify the different steps and stakeholders involved in the editorial process

CO 2: Acquire a working knowledge of the mechanics of editing and proof reading and utilize the same on a practical level to create error-free, well edited texts

CO 3: Be sensitized to the legal aspects involved in editing and publishing and find gainful employment in the editing and publishing industry

Vocational Course V CG 1472 Content Writing

Course Outcomes

CO 1: Understand what content writing is and attain an awareness of its scope.

CO2: Gain familiarity with various digital platforms and the formats of online publications.

CO3: Strengthen content writing skills through practice tasks and gain an awareness about style and specifications in digital media platforms.

Complementary Course IV CG 1431 Literatures of Travel and Tourism

Course Outcomes:

CO1: Familiar with various forms of travel writing.

CO2: Able to effectively produce content using them.

CO3: Acquire language proficiency for professional opportunities and academic settings related to Travel and Tourism.

SEMESTER V

Core Course VIII CG 1541 Film Studies

Course Outcome

CO 1: Recognize the language of films and use it creatively.

CO 2: Analyze films from both technical and non-technical perspectives

CO 3: Use film as a medium of communication and derive an interest in various careers related to film

Core Course IX CG 1542 Indian Literature

Course Outcome

CO 1: Trace the historical and literary genesis and development of Indian Writing in English

CO2: Comprehensive understanding of the major movements in Indian Writing in English across varied periods and genres

CO 3: Address the plurality of literary and socio-cultural representations within Indian life as well as letters

Core Course X CG 1543 Criticism and Theory

Course Outcome

CO 1: Analyze and appreciate texts critically, from different perspectives and methodologies

CO 2: Appreciate Indian Aesthetics and find linkages between Western thought and Indian critical tradition.

CO 3: Gain a critical and pluralistic understanding and perspective

Vocational Course VI CG 1571 Theatre Studies

Course Outcome

CO1: Develop a culture of theatre in students

CO2: Help students in applying theories and contexts in play texts

CO3: Enhance creativity in students by helping them in the production of a play

Vocational Course VII CG 1572 English Language Teaching

Course Outcome

CO1: Understand the theoretical basis of language teaching, and apply it to the actual teaching process

CO2: Be able to assess critically the implications of the various approaches, methods, techniques

CO3: Have the ability to develop material for teaching, to plan lessons and conduct them effectively

Vocational Course VIII CG 1573 Language for Advertising and Marketing

Learning Outcomes

CO 1; Prepare a primary advertising model

CO 2: Application of skills.

CO 3: To give students an appreciation of Advertising and Marketing Communications development focusing on the CLIENT's perspective

Open Course CG 1551.1 English for Communication

Course Outcome

CO 1: Learners majoring in some subject other than English will have a working knowledge of the type of English that is required in real life situations, especially the globalized workplace.

CO 2: Well trained to write clear, well-framed, polite but concise formal letters and e-mails for a variety of purposes

CO 3: Acquire some of the soft-skills that go hand in hand with English –namely, the ability to prepare for an interview and face it confidently, the ability to participate boldly a group discussion and contribute meaningfully to it, the ability to make a simple and interesting presentation of 5-10 minutes before a mixed audience on anything that they have learnt in the previous semesters of the UG programme.

Open Course CG 1551.2 Film Appreciation

Course Outcome

CO 1: Decipher the meaning of a movie

CO 2: Watch, understand and analyze films from a critical perspective

CO 3: Equip them to be resourceful to find a career in areas related to film

SEMESTER VI

Core Course XI CG 1641 Gender Studies

Course Outcome

CO 1: Analyse the ways in which gender, race, ethnicity class, caste and sexuality construct the social, cultural and biological experience of both men and women in all societies.

CO 2 : Interrogate the social constructions of gender and the limiting of the same in to the malefemale binary in its intersections with culture, power, sexualities and nationalities

CO 3: Recognize and use the major theoretical frames of analysis in gender studies in relation to the sustainable goals of development

Core Course XII CG 1642 Linguistics and Structure of English Language

Course Outcome

CO 1: Be able to analyse actual speech in terms of the principle of linguistics

CO 2: Improve the accent and pronunciation of the language

CO 3: Introduce the students to internationally accepted forms of speech and writing in English.

Vocational Course IX CG 1671 Screen Writing and

Course Outcome

CO1: Understand the concepts and techniques of scriptwriting and subtitling

CO2: Undertake writing scripts to build a genuine interest in the field and focus on a career in screenwriting.

CO3: Analyse the audio-visual material provided and overcome the challenges in translating cultural symbols in the source language.

Vocational Course X CG 1672 Public Relations and Corporate Communication

Course Outcome

CO 1: Produce effective, sensitive and ethical public relation and communication skills beneficial to the institution.

CO 2: Conduct public relation campaigns through press releases and other interactive methods with special focus on corporate communication.

CO 3: Help them find employment in the public/corporate sector.

Industry Based Elective Course CG 1661.1 Proof Reading and Copy Editing

Course Outcome

CO 1: Gain Through knowledge of the theoretical and practical knowledge of copy editing

CO 2: Copy-edit non–technical materials of moderate difficulty and produce consistently well organized written discourse.

CO 3: Find employment in the editing field as copy-editors, sub-editors and web editors.

Industry Based Elective Course CG 1661.2 Professional Communication Practice

Course Outcome

CO 1: Develop the skill ecosystem of the students

CO 2: Mold ethical consciousness

C O 3: Be able to meet the demands of the industry and professional option

Industry Based Elective Course CG 1661.3 Academic Writing

Course Outcome

CO1: Comprehend the concept of academic writing

CO2: Improve academic writing skills CO2: Learn to become responsible scholars

CO3: Undertake research writing and documentation with better perception

Master of Tourism and Travel Management (MTTM)

SEMESTER 1

APTT141: TOURISM: PRINCIPLES AND PRACTICES

Course Outcomes: -

1. Familiarizing students with the fundamental concept, growth and development of tourism.

2. Imparting knowledge to the students about the organizations in the tourism industry.

3. Understand the importance of tourism legislation and its usage in the current scenario.

4. To understand the measurement of tourism and impact of tourism.

5. To study the system, elements and motivational factors of tourism

APTT142: TOURISM PRODUCTS

Course Outcomes: -

1. Educating students about the concept of tourism products.

2. Familiarizing the important natural tourism products of India

3. Imparting knowledge about cultural tourism resources of India.

4. Identifying emerging tourism products and their availability.

5. Conceptualize a tour itinerary based on variety of themes

APTT143: BUSINESS COMMUNICATION

Course Outcomes: -

1. To improve the oral and written communication skills of tourism administrators.

2. To establish a rapport with tourists, to gain their goodwill and confidence.

APTT144: PRINCIPLES OF MANAGEMENT

Course Outcomes: -

1. To provide basic knowledge about the various concepts of management.

2. To develop the skills needed to manage an institution related to tourism.

APTT145: RESEARCH METHODS FOR TOURISM

Course Outcomes: -

1. To know the role of research in effective decision-making.

2. To familiarize with the fundamental concepts and various techniques of research that can be used in tourism business and management

SEMESTER 2

APTT241: HOSPITALITY MANAGEMENT

Course Outcomes: -

1. Understanding the essentials of the hospitality industry.

2. Educating students on the evolution of the hospitality industry.

3. Acquiring knowledge of different hospitality departments and its various functions.

4. Familiarizing students on the marketing of accommodation establishments.

5. To inculcate a culture of hospitality among students

APTT242: MANAGEMENT OF TRAVEL AGENCY AND TOUR OPERATORS' BUSINESS

Course Outcomes: -

1. To familiarize yourself with travel agencies and its formation and recognition.

2. To understand the operations in a travel agency such as ticketing, visa etc.

3. To study the various operations of a tour operator.

4. To enable the students to prepare tour itineraries.

5. To familiarize yourself with tour packaging and tour costing.

APTT243: FRENCH

Course Outcomes: -

1. To familiarize the students with the French language and culture

2. To comprehend, converse and write simple day to day activities in French with an emphasis to tourism related situations.

3. To acquaint the students with the important touristic places and monuments in France

APTT 244: EVENT MANAGEMENT

Course Outcomes: -

1. To equip the students with the essentials of Event Management and MICE

2. To develop the basic skills for conducting Events

APTT245: ACCOUNTING AND FINANCE FOR TOURISM

Course Outcomes: -

1. To get a basic understanding of accounting principles and practices.

2. To make the student capable of preparing final accounts of a small business both manually and using TALLY.

APTT246: STUDY TOUR REPORT AND VIVA VOCE

SEMESTER 3

APTT341: WORLD TRAVEL GEOGRAPHY

Course Outcomes: -

1. Studying the relationship of geography and tourism

2. To familiarize students with destinations of North and South America and its tour itineraries.

3. To familiarize students with destinations of Europe and its tour itineraries.

4. To familiarize students with destinations of Asia & Oceania and its tour itineraries.

5. To familiarize students with destinations of Africa & Antarctica and its tour itineraries.

APTT342: TOURISM PLANNING & DESTINATION DEVELOPMENT

Course Outcomes: -

1. To give a comprehensive idea about tourism planning and destination development.

2. To familiarize yourself with various policies of tourism development.
3. To study about the destinations and its management system.

4. To know about the concept of destination image development.

5. To understand the marketing of destination.

APTT343: TOURISM MARKETING

Course Outcomes: -

1. To understand the marketing practices and methods in the tourism industry.

2. To acquaint the students with contemporary marketing practices.

APTT344: FINANCIAL MANAGEMENT AND ENTREPRENEURSHIP DEVELOPMENT

Course Outcomes: -

1. To Understand application of fundamental concepts of finance and revenue management in the tourism and hospitality industry

2. To inspire the students to have a practical insight into becoming an entrepreneur.

APTT345: IT FOR TOURISM

Course Outcomes:-

1. To familiarise the students with computers & E-technologies

APTTD Project/Dissertation and Project based Viva Voce

APTT441: AIRLINE AND AIRPORT MANAGEMENT

Course Outcomes:-

1. To understand the structure and dynamics of airline industry

2. To enable students to acquire skills in managing airline, airport operations.

3. To familiarize students on different formalities in airport for arrival and departure

4. To study various airline terminologies like airport-airline codes, IATA TC areas etc.

5. To educate students on the evolution of the airline industry and the role of different organizations in aviation.

APTT442: ECO TOURISM

Course Outcomes:-

1. To familiarize with basics of ecology and its relationship with tourism.

2. To study the concept and evolution of ecotourism.

3. To know the types of carrying capacity and Environmental Impact Assessment.

4. To familiarize with various ecotourism projects in India and abroad. To understand the role of ecotourism agencies.

APTT443: HUMAN RESOURCE MANAGEMENT

Course Outcomes: -

1. To provide basic knowledge about the concepts of Human Resource Management

2. To equip the students with essential skills required for managing human resources.

APTT444: E-TOURISM

Course Outcomes: -

1. To understand emerging IT business models in tourism and travel industry;

2. To give a detailed outlook on software in the tourism business with special significance to the Computer Reservation system.

APTT445 Internship

APTTV Comprehensive Viva-Voce

B.COM ACCOUNTS & AUDIT

Foundation Course I
AUCOA121: Methodology and Perspectives of Business Education

Course Outcomes:

CO1	Understand the concept of business
CO2	Know the environment in which business functions
CO3	Appreciate the influence of government policies on business growth
CO4	Identify organisations which facilitate business
CO5	Recognize the importance of management in business

Core Course I
AUCOA141: ENVIRONMENTAL STUDIES

Course Outcomes:

CO1	Understand the importance of environmental studies
CO2	Appreciate ecology and ecosystems
CO3	Cognize the negative effects of pollution on environment and ways to control pollution
CO4	Identify important environmental issues
CO5	Understand the effect of growing population on environment

Core Course II

AUCOA142: FINANCIAL ACCOUNTING

Course Outcomes:

CO1	Explain and use the accounting equation in basic financial analysis
CO2	Understand the process of accounting
CO3	Prepare Bank Reconciliation Statements
CO4	Apply knowledge of accounting in the preparation of final accounts of sole Trader
CO5	Prepare accounts of non-profit organizations

Complementary Course I

AUCOA131: BUSINESS MATHEMATICS

Course Outcomes:

CO1	Understand the concept of ratios, proportions, Indices, Logarithms and its application in business
CO2	Solve different equations using different methods including matrices
CO3	Resolve equations with inequalities
CO4	Understand the concept of interest, related terms and computation thereof
CO5	Differentiate between permutations and combinations in arranging objects

Foundation Course II

AUCOA 221: INTRODUCTION TO THE INDIAN CONSTITUTION AND HUMAN RIGHTS

Course Outcomes:

CO1	Awareness about the ideological foundations and principles of the Indian Constitution and the composition and functioning of the Union Government
CO2	Develop respect for Human Rights
CO3	Awareness on UDHR and International Covenants on Human Rights

Core Course III

AUCOA241: MERCANTILE LAW

Course Outcomes:

CO1	Understand the general framework of laws
CO2	Recognize the laws which are applicable to business
CO3	Informed of important provisions of Contract Act
CO4	Acquainted with the important provisions of Sale of Goods Act
CO5	Aware of the important provisions of Indian Partnership Act

Core Course IV

AUCOA242: BUSINESS ECONOMICS

Course Outcomes:

CO1	Understand the application of economic theories in business decisions
CO2	Describe the various forecasting techniques
CO3	Illustrate production optimization using Isoquants and Iso-cost curves
CO4	Explain how prices are determined in different market situations
CO5	Elucidate the relevance of business cycles in business decision making

Complementary Course II

AUCOA231: BUSINESS STATISTICS

Course Outcomes:

CO1	Understand the application of statistics in business
CO2	Apply appropriate measures of central tendency and dispersion in business Situations
CO3	Differentiate between correlation and regression and its application in estimation of a variable from a known set of data
CO4	Apply knowledge of index numbers and time series analysis in interpreting economic and business data
CO5	Appreciate the use of probability and theoretical distributions in financial forecasting

SEMESTER III

Core course V AUCOA341: COMPANY LAW

Course Outcomes:

CO1	Understand the preliminaries of Companies Act 2013
CO2	Acquaint with the statutory documents with regard to companies
CO3	Informed of the provisions of Companies Act with respect to management
CO4	Conversant with the provisions of Companies Act with respect to dividends, accounts and audit
CO5	Aware of the provisions of Companies Act with respect to Winding up

Core Course VI

AUCOA342: COST ACCOUNTING

Course Outcomes:

CO1	Explain the various concepts of cost
CO2	Understand the basics of inventory accounting and control
CO3	Acquainted with the basics of accounting and control of labour cost
CO4	Aware of accounting of overheads
CO5	Informed of cost accounting records

Core Course VII

AUCOA343: FUNDAMENTALS OF INCOME TAX

Course Outcomes:

CO1	Understand the preliminaries of Income Tax Act
CO2	Compute Income from salaries as per the provisions of the Income Tax Act
CO3	Calculate Income from house property as per the provisions of the Income Tax Act
CO4	Determine Profits and Gains from Business and Profession as per the provisions of the Income Tax Act
CO5	Assess Capital Gains and Income from other sources as per the provisions of the Income Tax Act

Complementary Course III

AUCOA331: INFORMATICS AND CYBER LAWS

Course Outcomes:

CO1	Understand the field of informatics
CO2	Acquaint with the emerging Knowledge society
CO3	Mindful of IT and its role in society
CO4	Aware about cyberworld
CO5	Informed of cyber regulations

Elective Course I

AUCOA391: CORPORATE ACCOUNTING

Course Outcomes:

CO1	Aware of accounting standards
CO2	Understand the process of accounting with respect to shares and debentures
CO3	Prepare the final accounts of companies
CO4	Acquainted with accounting in the case of amalgamation, absorption and external reconstruction
CO5	Informed about accounting in the case of liquidation

SEMESTER IV

Core Course VIII

AUCOA441: APPLIED COSTING

Course Outcomes:

CO1	Explain the cost accounting process followed in the case of specific orders
CO2	Understand process costing
CO3	Prepare the cost records of specific service institutions
CO4	Apply knowledge of marginal costing in business decisions
CO5	Analyse and compute material variance

Core Course IX

AUCOA442: MANAGEMENT ACCOUNTING

Course Outcomes:

CO1	Aware of techniques of management accounting
CO2	Analyse financial statements
CO3	Prepare fund flow statement
CO4	Draw up a cash flow statement
CO5	Describe the process of making budgets

Core Course X

AUCOA443: INCOME TAX LAW AND ACCOUNTS

Course Outcomes:

CO1	Understand the provisions of Income Tax for computing Gross Total Income of Assesses
CO2	Acquainted with the deductions which can be made from Gross Total Income under Income Tax Act
CO3	Compute total income and tax liability of individuals under Income Tax Act
CO4	Aware about the provisions of Income Tax Act with respect to Advance Tax, TDS and TCS
CO5	Informed about the provisions of Income tax with respect to filing return of income and assessment

Complementary Course IV
AUCOA431: GOODS AND SERVICE TAX LAWS

Course Outcomes:

CO1	Understand the preliminaries of Goods and Services Tax Act
CO2	Acquainted with the concept of Supply under Goods and Service Tax Act
CO3	Conversant with the registration and documentation requirements of Goods and Service Tax Act
CO4	Aware about the provisions of Input Tax Credit and GST Returns
CO5	Informed about the provisions of GST about payment of GST

ELECTIVE COURSE II

AUCOA491: SPECIAL ACCOUNTING

Course Outcomes:

CO1	Aware of equity shares with differential rights
CO2	Preparation of investment account
CO3	Understand accounting in respect of insurance claims
CO4	Draw up the accounts of banking companies
CO5	Acquainted with computerised accounting

SEMESTER V

Core Course XI

AUCOA541: BANKING THEORY AND PRACTICE

Course Outcomes:

CO1	Understand the basics of banking
CO2	Acquainted with the concept of Central Bank
CO3	Conversant with the banking practices in India
CO4	Aware about the innovations and reforms in banking
CO5	Informed about the concept of retail banking

Core Course XII

AUCOA542: FINANCIAL MANAGEMENT

Course Outcomes:

CO1	Understand the conceptual framework of financial management
CO2	Appraise various investment proposals
CO3	Conversant with skill of managing working capital
CO4	Aware about the factors affecting the determination of an optimum capital structure
CO5	Informed about various dividend policies that can be followed and the factors that affect dividend policy of a firm

Core Course XIII

AUCOA543: FINANCIAL MARKETS AND SERVICES

Course Outcomes:

CO1	Understand the Indian Financial System
CO2	Acquainted with Financial Markets in India
CO3	Conversant with classification of various financial services
CO4	Aware about important fund based financial services in India
CO5	Informed about important fee based financial services in India

Open Course I

(For students from programmes other than FDP in B.Com Accounts & Audit)

AUCO581.b: FUNDAMENTALS OF FINANCIAL ACCOUNTING

Course Outcomes:

CO1	Aware of theoretical framework of accounting
CO2	Record transactions in Journal
CO3	Prepare ledger and trial balance
CO4	Detect and rectify errors
CO5	Draw up the financial statements of a sole trader

Elective Course III

AUCOA591: AUDITING

Course Outcomes:

CO1	Understand the preliminaries of auditing
CO2	Acquainted with audit process, documentation and internal check
CO3	Conversant with audit procedures to obtain audit evidence
CO4	Aware about the procedures for verification and valuation of assets and liabilities
CO5	Distinguish between auditing and investigation

SEMESTER VI

Core Course XIV

AUCOA641: INTERNATIONAL TRADE

Course Outcomes:

CO1	Understand the theories of international trade
CO2	Acquainted with the instruments of trade policy
CO3	Aware of trade negotiations
CO4	Conversant with exchange rate and its economic affects
CO5	Informed of international capital movements

Core Course XV

AUCOA642: ENTERPRISE INFORMATION SYSTEM

Course Outcomes:

CO1	Understand automated business processes
CO2	Acquainted with financial and accounting systems
CO3	Aware of information systems and its components
CO4	Conversant with E-Commerce, M-Commerce and Emerging Technologies
CO5	Informed about Core Banking Systems

Core Course XVI

AUCOA643: STRATEGIC MANAGEMENT

Course Outcomes:

CO1	Understand the concept of strategy
CO2	Acquainted with environment analysis
CO3	Aware of strategic alternatives
CO4	Conversant with organization and strategic leadership
CO5	Informed of strategy implementation and control

OPEN COURSE II
AUCOA681: ECONOMICS FOR FINANCE

Course Outcomes:

CO1	Understand different concepts relating to national accounting
CO2	Acquainted with role of government in an economic system
CO3	Aware of fiscal policy and the various instruments associated with it
CO4	Conversant with demand and supply aspects of money
CO5	Informed about monetary policy

Elective Course IV

AUCOA691: Practical Auditing

Course Outcomes:

CO1	Understand various aspects associated with company audit
CO2	Acquainted with the audit practices in specified undertakings
CO3	Conversant with various aspects of audit report
CO4	Aware about the responsibilities of the auditor in the case of fraud
CO5	Informed about audit in automated environment

B. Com

SEMESTER I

Foundation Course I

METHODOLOGY AND PERSPECTIVES OF BUSINESS EDUCATION

CO1: Become aware of the business environment and the role of business in economic development.

CO2: Get a holistic, comprehensive and integrated perspective of business education

Core Course I: ENVIRONMENTAL STUDIES

Course Outcomes:

With the successful completion of the course the student will:

CO1: Acquire basic ideas about environment and emerging issues about environmental problems.

CO2: Gain awareness about the need and importance of environmental protection

Core Course II: MANAGEMENT CONCEPTS AND THOUGHT

Course Outcomes:

With the successful completion of the course the student will:

CO1: Be equipped with knowledge of management concepts and their application in contemporary organizations

CO2: Have an overall understanding of the different dimensions of the management process.

Complementary Course I: MANAGERIAL ECONOMICS

Course Outcomes:

With the successful completion of the course the student will be:

CO1: Familiarized with the economic principles and theories underlying various business decisions.

CO2: Able to apply economic theories in different business situations.

SEMESTER II

Foundation Course II: INFORMATICS AND CYBER LAWS

Course Outcomes:

With the successful completion of the course the student will:

CO1: Be able to update and expand informatics skills and attitudes relevant to the emerging knowledge society

CO2: Be aware about the cyber world and cyber regulations.

Core Course III: FINANCIAL ACCOUNTING

Course Outcomes:

With the successful completion of the course the student will be:

CO1: Be familiarized with different methods of depreciation.

CO2: Be equipped to prepare accounts of specialized business enterprises.

CORE COURSE IV: BUSINESS REGULATORY FRAMEWORK

Course Outcomes:

With the successful completion of the course the student will:

CO1: Get a brief idea about the framework of Indian business Laws

CO2: To enable the students to apply the provisions of business laws in business activities

Complementary Course II: BUSINESS MATHEMATICS

Course Outcomes:

With the successful completion of the course the student will be:

CO1: Familiarized with the basic mathematical tools.

CO2: Apply mathematical tools in business practice

SEMESTER III

CORE COURSE V: ENTREPRENEURSHIP DEVELOPMENT

Course Outcomes:

With the successful completion of the course the student will:

CO1: Get a practical insight for becoming an entrepreneur

CO2: Be familiar with the latest programmes of Government in promoting small and medium industries.

Core Course VI: ADVANCED FINANCIAL ACCOUNTING

Course Outcomes:

With the successful completion of the course the student will be:

CO1: Aware of accounting treatment at the time of dissolution of partnership firms.

CO2: Acquainted with the system of accounting for different branches, departments and consignments.

Core Course VII: COMPANY ADMINISTRATION

Course Outcomes:

With the successful completion of the course the student will be:

CO1: Familiar with the salient provisions of Indian Companies Act 2013.

CO2: Acquainted with Management and Administration of Companies, Compliance requirements, investigation into the affairs of the company and Winding up procedure.

Complementary Course III: E-Business

Course Outcomes:

With the successful completion of the course the student will:

CO1: Have a clear-cut idea of e-commerce and e-business- their types and models.

CO2: Have basic knowledge of starting online business.

Elective Course I: Stream 1 -Computer Application

COMPUTER APPLICATION FOR PUBLICATIONS

Course Outcomes:

With the successful completion of the course the student will:

CO1: Have functional knowledge in the field of free software.

CO 2: Develop practical skills in docu8ment preparation, publishing and business presentation.

Elective Course I: Stream 2 - Co-operation

PRINCIPLES OF CO-OPERATION

Course Outcomes:

With the successful completion of the course the student will:

CO1: Have an understanding of the principles of co-operation.

CO2: Be acquainted with the management and working of co-operatives.

Elective Course I: Stream 3 – Finance

FINANCIAL MANAGEMENT

Course Outcomes:

With the successful completion of the course the student will:

CO1: Be familiar with the conceptual framework of financial management.

CO2: Understand the practical applications of financial management.

(25hrs)

SEMESTER IV

Core Course VIII: INDIAN FINANCIAL MARKET

CO1: Get an idea about Indian Financial Market

CO 2: Have an understanding of Capital market operations

Core Course IX: BANKING AND INSURANCE

Course Outcomes:

With the successful completion of the course the student will:

CO1: Get a basic knowledge about the theory and practice of banking

CO 2: To provide a basic understanding of Insurance business.

Core Course X: CORPORATE ACCOUNTING

Course Outcomes:

With the successful completion of the course the student will be:

CO1: Aware about corporate accounting in conformity with the provisions of Companies Act, IAS and IFRS.

CO2: Equipped to prepare accounts of banking and insurance companies.

Elective Course III: Stream 1 - Computer Application

SOFTWARE FOR DATA MANAGEMENT

Course Outcomes:

With the successful completion of the course the student will:

CO1: Be familiarized with the basics of Software for data management.

CO2: Develop practical skills in spread sheet application, statistical software and database application.

Elective Course II: Stream 2 - Co-Operation

CO-OPERATIVE MANAGEMENT AND ADMINISTRATION

Course Outcomes:

With the successful completion of the course the student will:

CO1: Be familiarized with the principles and practice of co-operative management and administration.

CO2: Will be able to identify the issues in the process of management and administration of co-operatives

Elective Course II: Stream 3-Finance

PROJECT FINANCE

Course Outcomes:

With the successful completion of the course the student will:

CO1: Be familiarized with the types of project appraisal, risk analysis, project financing costing and valuing

CO2: Get an overview of global project appraisal issues.

Complementary Course IV BUSINESS STATISTICS

Course Outcomes:

With the successful completion of the course the student will:

CO1: Develop the skill for applying appropriate statistical tools and techniques indifferent business situations.

SEMESTER V

Core Course XI: FUNDAMENTALS OF INCOME TAX

Course Outcomes:

With the successful completion of the course the student will:

CO1: Be familiarized with the fundamental concepts of Income Tax.

CO2: Acquire the basic skills required to compute the tax liability of individual assessee with more emphasis on Income from Salaries and Income from House property.

Core Course XII: CO 1542 - COST ACCOUNTING

Course Outcomes:

With the successful completion of the course the student will:

CO1: Be familiarized with cost and cost accounting concepts

Core Course XIII : MARKETING MANAGEMENT

Course Outcomes:

With the successful completion of the course the student will:

CO1: Have an understanding of the contemporary marketing process in the emerging business scenario.

CO2: Skilled to apply modern marketing techniques for obtaining a competitive advantage in business organizations.

Open Courses *(For students from Disciplines other than Commerce)*

Open Course I: - FUNDAMENTALS OF FINANCIAL ACCOUNTING

Course Outcomes:
With the successful completion of the course the student will:

CO 1: Introduced to the branch of financial accounting
CO 2: Have an understanding about the basic concepts of financial accounting.

Elective Course II: Stream 1 - Computer Application

WEB DESIGNING AND PRODUCTION FOR BUSINESS

Course Outcomes:

With the successful completion of the course the student will:

CO1: Have functional knowledge in the field of Web design

CO2: Develop practical skills in Web deigning and production for business organizations.

Elective Course III: Stream 2 - Co-operation

CO-OPERATIVE LEGAL SYSTEM

Course Outcomes:

With the successful completion of the course the student will:

CO1: Get an insight into the prevailing co-operative legal system.

CO2: understand the legal framework of co-operation.

FINANCIAL SERVICES IN INDIA

Course Outcomes:

With the successful completion of the course the student will:

CO1: Be aware about the financial services

CO2: Familiarized with the structure and functioning of financial service sector in India.

SEMESTER VI

Core Course XIV: AUDITING

Course Outcomes:

With the successful completion of the course the student will:

CO1: Gain knowledge of auditing principles, procedures and techniques in accordance with current legal requirements and professional standards.
CO2: Be familiarized with the audit of Companies and the liabilities of the auditor.

Core Course XV: APPLIED COSTING

No of instructional hours per week: 5 No of credits: 4

Course Outcomes:

With the successful completion of the course the student will:

CO1: Be acquainted with different methods and techniques of costing.
CO2: Be able to apply the costing methods and techniques in different types of industries.

Core course XVI: MANAGEMENT ACCOUNTING

No. of instructional hours per week: 5 No. of credits: 4

Course Outcomes:

With the successful completion of the course the student will:

CO1: Acquire sound knowledge of concepts, methods and techniques of management accounting

CO2: Develop competence with management accounting usage in managerial decision making and control.

Open Course (For students from Department of Commerce)

PRACTICAL ACCOUNTING

CO1: Acquire knowledge of how accounts are maintained in a practical manner.

CO2. Equipped to prepare final accounts and annual report in depth.

Elective Course IV: Stream 1 -Computer Application

COMPUTERISED ACCOUNTING

Course Outcomes:

With the successful completion of the course the student will:

CO1: Be exposed to computer application in the field of Accounting.

CO2: Develop practical skills in the application of Tally Package.

Elective Course IV: Stream 2 -Co-operation

CO-OPERATIVE ACCOUNTING

CO1: Be familiarized with the special features of accounting and audit in co-operatives.

CO2: Understand the procedures of co-operative audit.

Elective course IV: Stream 3- Finance

TAXATION LAW AND ACCOUNTS

Course Outcomes:

With the successful completion of the course the student will:

CO1: Understand the provisions of Income Tax for computing Total Income and Tax liability of various persons.

CO2: Get a basic knowledge of Goods and Service Tax

B. A. ANALYTICAL ECONOMICS (UNDER CBCS SYSTEM)

SEMESTER 1

CORE COURSE I AUAE141: BASIC MATHEMATICS FOR ECONOMICS Name of the Course: AUAE 141-Basic Mathematics for Economics

Course Outcomes

CO1 To understand the basic concepts, scope, nature and methods of economics. CO2 To learn micro and macro models of economics and tools of economic analysis.

CO3 To study the basic concepts of mathematics and their applications in economics. CO4 To apply the techniques of differentiation and integration to various economic analyses.

SEMESTER 2

CORE COURSE II AUAE241: INTRODUCTORY MICROECONOMICS

Name of the Course: AUAE 241-Introductory Microeconomics

Course Outcomes

CO1 To study the theoretical framework of consumer behavior.

CO2 To understand the various aspects of demand and supply

CO3 To evaluate the elasticity of demand and supply

CO4 To analyze the basic theories of production function. CO5 To understand the types of costs and revenue in production.

SEMESTER 3

CORE COURSE III AUAE341: INTERMEDIATE MICROECONOMICS

Name of the Course: AUAE 341- Intermediate Microeconomics

Course Outcomes

CO1 To understand the general idea about the perfect and imperfect markets.

CO2 To examine the price and output determination in various markets.

CO3 To learn the theories of factor pricing and distribution.

CO4 To study the theories on welfare economics and the general equilibrium concept.

CO 5 To understand the economics of Uncertainty

SEMESTER 3

CORE COURSE IV AUAE342: STATISTICAL TOOLS FOR ECONOMICS Name of the Course: AUAE 342- Statistical Tools for Economics

Course Outcomes

CO1 To understand the measures of Central Tendency to interpret empirical data

CO2 To apply the techniques of correlation and regression in economics.

CO3 To study the different types of index numbers.

CO4 To study the elementary theory of probability including probability distributions.

SEMESTER 4 CORE COURSE V AUAE 441: INTRODUCTORY MACRO ECONOMICS

Name of the Course: AUAE 441- Introductory Macro Economics

Course Outcomes

CO1 To compare micro and macroeconomics and study the different types of macro-economic variables.

CO2 To understand the concept of national income and different methods of measuring it.

CO3 To summarize the contributions made by the classical economists in macroeconomics.

CO4 To understand the concept and theories of consumption function.

CO5 To examine the types and determinants of investment.

SEMESTER 4 FOUNDATION COURSE II AUAE421: DATA SCIENCE FOR ECONOMICS

Name of the Course: AUAE 421- Data Science for Economics

Course Outcomes

CO1 To understand the concept and Importance of Data science and various data sources in Indian economy.

CO2 To study the various concepts of R language.

CO3 To study the basics of data visualization and basic econometric analysis using R CO4 To understand the concept of Machine Learning in R

SEMESTER 5 CORE COURSE VI: AUAE541: INTERMEDIATE MACRO ECONOMICS

Name of the Course: AUAE 541- Intermediate Macro Economics

Course Outcomes

CO1 Comprehend the Keynesian theory of income output and employment.

CO2 Analyze national income determination in three and four sector economy. CO3 Perceive the evolution of money and the concepts related to the demand for and supply of money.

CO4 Strengthen the awareness about the basic economic issues like inflation, unemployment and trade cycle.

CO5 Study the effectiveness of macroeconomic policies in tackling fundamental economic issues.

SEMESTER 5 CORE COURSE VII AUAE542: INDIAN ECONOMY I

Name of the Course: AUAE 542- Indian Economy I

Course Outcomes

CO1 To study the features of Indian economy both general and demographic.

CO2 To examine the growth pattern of Indian economy in the pre-colonial, colonial and pre - liberalization period.

CO3 To acquaint the students with the service and external sectors of India.

CO4 To understand the Indian economy in the post liberalization period

SEMESTER 5 CORE COURSE VIII AUAE543: PUBLIC ECONOMICS Name of The Course: AUAE 543- Public Economics

Course Outcomes

CO1 To enable the students to identify the significance of Government intervention in a market economy.

CO2 To develop an understanding about the public revenue and expenditure.

CO3 To understand the concept of public debt and budget

CO4 To promote understanding of the relevance of fiscal policy and fiscal federalism

SEMESTER 5 CORE COURSE IX AUAE544: MONEY AND MODERN BANKING

Name Of the Course: AUAE 544- Money and Modern Banking

Course Outcomes

CO1 To understand the different aspects of money and the concepts of demand for and supply of money.

CO2 To examine the types, functions, and prominence of commercial banking and the significance of Central Bank.

CO3 To understand the progress of digitalization of payment mechanism in India. CO4 To analyze the financial inclusive measures adopted by the Government of India.

SEMESTER 5 CORE COURSE X AUAE545: RESEARCH METHODOLOGY

Name Of the Course: AUAE 545- Research Methodology

Course Outcomes

CO1 To provide an understanding of the concept and types of research and the criteria of good research.

CO2 To understand the various steps to be followed in selecting the research problem.

CO3 To enable the students to get an idea about the different methods of data collection and the data analysis process.

CO4 To understand the techniques of data interpretation and report writing.

SEMESTER 5 OPEN COURSE AUAE581.a: INTRODUCTION TO INDIAN ECONOMY

Name Of The Course: AUAE581.a: Introduction to Indian Economy

Course Outcomes

CO1 To appraise the students of the features of Indian economy in the pre-colonial, postcolonial, and globalized era.

CO2 To provide the students an understanding of Indian economy in terms on its National Income, sectorial share, government finance and expenditure, Centre-state relation, the significance of budget, and monetary policy.

CO3 To expose the students to the basic economic issues like inflation, unemployment, and poverty.

SEMESTER 5 OPEN COURSE AUAE581.b: INTRODUCTORY ECONOMICS

Name Of the Course: AUAE581.b: Introductory Economics

Course Outcomes

CO1 To introduce Economics and the various concepts.

CO2 To acquaint the students with one of the main branches of Economics, namely Microeconomics.

CO3 To familiarize the students with the basics of the other main branch of Economics, namely, Macro Economics.

CO4 To expose the students to the branches of Economic Development and International Trade.

SEMESTER 5 OPEN COURSE AUAE581.c: HUMAN RESOURCE MANAGEMENT

Name Of the Course: AUAE581.c: Human Resource Management

Course Outcomes

CO1 To expose the students to the basic concept and functions of Human Resource Management (HRM).

CO2 To acquaint the students with the significance of HR planning in efficient HRM

CO3 To appraise the students about the different techniques of recruitment, selection, and training of employees.

CO4 To provide the students an understanding of the disciplinary measures that can be taken to control Human Resource.

SEMESTER 6 CORE COURSE XI AUAE641: INDIAN ECONOMY II Name of the Course: AUAE641: Indian Economy II

Course Outcomes

CO1 To acquaint the students to the economic planning process followed in India, its takeover by the Niti Aayog, and the major economic issues in the country.

CO2 To provide the students an understanding of the structure of Kerala economy. CO3 To familiarize the students with an understanding of the demographic changes in Kerala.

CO4 To appraise the students about the performance of the productive sectors of Kerala.

SEMESTER 6 CORE COURSE XII AUAE642: FINANCIAL ECONOMICS Name of The Course: AUAE642: Financial Economics

Course Outcomes

CO1 To provide an overview of the financial system in India.

CO2 To equip students with basic knowledge of the functioning of financial markets and services.

CO3 To expose the students to the activities of the securities market.

CO4 To familiarize the students to the Indian financial system.

SEMESTER 6 CORE COURSE XIII AUAE643: INTERNATIONAL ECONOMICS

Name Of the Course: AUAE643: International Economics

Course Outcomes

CO1 To enable the students to understand the basic concepts related to international trade.

CO2 To familiarize the students with the trade policies that influence the trading between countries.

CO3 To appraise the students about the important facts about the Balance of Payment of the country and about the exchange rate.

CO4 To expose to the students India ‘s position in the external sector.

SEMESTER 6 CORE COURSE XIV AUAE644: DEVELOPMENT ECONOMICS

Name Of the Course: AUAE644: Development Economics

Course Outcomes

CO1 To understand the basic concepts related to economic growth and development.

CO2 To examine the different tools for measuring economic growth and development.

CO3 To acquaint the students with the essential theories of development.

SEMESTER 6 ELECTIVE COURSE AUAE691.a: BASIC ECONOMETRICS

Name Of the Course: AUAE691.a: Basic Econometrics

Course Outcomes

CO1 To provide an understanding of Econometrics.

CO2 To equip students with basic knowledge for the estimation of simple linear regression model.

CO3 To train the students with basic knowledge for the estimation of multiple linear regression model.

CO4 To study the basic violations of classical assumptions.

SEMESTER 6 ELECTIVE COURSE AUAE691.b: HISTORY OF ECONOMIC THOUGHT

Course outcomes:

CO 1 The course intends to familiarize the students with the broad contours of Social Sciences, specifically Economics.

CO 2 The course also aims to create an enthusiasm among students regarding the origin and evolution of different schools of thought in Economics

SEMESTER 6 ELECTIVE COURSE AUAE691.c: MATHEMATICAL ECONOMICS

SEMESTER 6 CORE COURSE XV AUAE645: PROJECT AND PROJECT BASED VIVA-VOCE

COMPLEMENTARYCOURSE IN POLITICAL SCIENCE FOR THE B. A. ANALYTICAL ECONOMICS PROGRAMME UNDER THE CHOICE BASED CREDIT AND SEMESTER SYSTEM (CBCS)

SEMESTER I

COMPLEMENTARY COURSE AUPS131.1c: INTRODUCTION TO POLITICAL SCIENCE

Name of the Course: AUPS131.1c: Introduction to Political Science

Course Outcomes

CO1 To understand the basic concepts in Political Science.

CO2 To familiarize the major approaches to the study of Political Science.

CO3 To impart basic understanding about the state, its organs and chief forms of government.

CO4 To create awareness about various ideas and ideologies in Political science

SEMESTER II

COMPLEMENTARY COURSE AUPS231.1c: INDIAN GOVERNMENT AND POLITICS

Name of the Course: AUPS231.1c: Indian Government and Politics

Course Outcomes

CO1 To study the philosophical foundations and features of the Indian Constitution CO2 To acquire awareness about citizens' fundamentals rights and duties.

CO3 To understand the composition and functioning of the State and Union Government and the Centre- State relations CO4 To provide the students with critical insights in the functioning of Electoral Democracy and Party System CO5 To familiarize the functioning of Grass-Root Democracy in India.

SEMESTER III

COMPLEMENTARY COURSE AUPS 331.1c: PUBLIC ADMINISTRATION

Name of the Course: AUPS331.1c: Public Administration

Course Outcomes

CO1 To gain some basic understanding about Public Administration.

CO2 To acquaint yourself with the basic principles of Public Administration such as Organization, Personnel Administration, Financial Administration and District Administration.

CO3 To obtain knowledge about the new trends in Public Administration.

SEMESTER IV

COMPLEMENTARY COURSE AUPS 431.1c: INTERNATIONAL POLITICS

Name of the Course: AUPS431.1c: International Politics

Course Outcomes

CO1 To equip the students with the basic concepts, theories and approaches in the study of international politics.

CO3 To study the basics about India's Foreign Policy and key bi-lateral relations. CO4 To familiarize students with the major International and Regional Organizations.

CO5 To impart knowledge about the impact of Globalization

CO6 To create awareness about major issues in Global Politics

COMPLEMENTARY COURSE IN HISTORY FOR THE B. A. ANALYTICAL ECONOMICS PROGRAMME UNDER THE CHOICE BASED CREDIT AND SEMESTER SYSTEM (CBCS)

SEMESTER I

COMPLEMENTARY COURSE AUHY131.1c: INDIAN HERITAGE AND CULTURE

Name of the Course: AUHY131.1c: Indian Heritage and Culture

Course Outcome

CO 1 To examine the means of livelihood in ancient India and appreciate the diversity in resource potential.

CO 2 To analytically understand the socio-cultural and economic changes across the ancient ages, their influence in the economy and to critically examine the parallels and the inter-disciplinary nature of these social, cultural and economic affairs.

CO 3 To examine the transition from tribal societies to State and the evolution of modes of revenue collection for subsistence of the State.

CO 4 To understand the decentralization process resulting from feudal societies based on land grants.

SEMESTER II COMPLEMENTARY COURSE AUHY231.1c: HISTORY OF MODERN INDIA - I

Name of the Course: AUHY231.1c: History of Modern India - I

Course Outcome

CO 1 To understand the nature of colonial imperialism, India's response and the subsequent administrative changes.

CO 2 To evaluate the economic impact of the British rule and to examine the anticolonial uprisings that led to reforms.

CO 3 To assess the value of social reformers and to understand their contribution to Modern India.

CO 4 To examine the background of the Gandhian Era and to understand Gandhi's entry into the nationalist agitation.

SEMESTER III

COMPLEMENTARY COURSE AUHY331.1c: HISTORY OF MODERN INDIA - II

Name of the Course: AUHY331.1c: History of Modern India - II

Course Outcome CO 1 To examine the role of revolutionary organizations and to understand the sacrifice of militant nationalists for the independence of India.

CO 2 To trace the British repression of freedom movement and the agitations that led to the freedom of the nation.

CO 3 To understand the process of the integration of the princely states and the significance of gaining constitutional rights.

CO 4 To evaluate the importance of the Non-Alignment Movement and to examine the external invasions that the independent India was made to undergo.

SEMESTER IV COMPLEMENTARY COURSE AUHY431.1c: HISTORY OF MODERN WORLD

Name of the Course: AUHY431.1c: History of Modern World

Course Outcome

CO 1 To examine the significance of the economic revolutions and the subsequent emergence of the related economic policies on free as well as restricted trade.

CO 2 To understand the impact of the First World War in the public life of women and to assess the significance of the Great Economic Depression.

CO 3 To evaluate the changes that the Second World War caused in favor of feminism and the formation of UNO to preserve world peace and security.

CO 4 To assess the measures of economic reconstruction in the post- war period, the Cold War tensions, and the challenges of the Third World countries.

Syllabus for Mathematics (Complementary) FDP BA (Economics)

SEMESTER-1

AUMM 131.1a: MATHEMATICS FOR ECONOMICS-I (Differential Calculus of Functions of One Variable)

Course Outcomes:

CO1: Intended for Economics students lays emphasis on the increased use of mathematical methods in Economics.

CO2: To get working knowledge on limits, continuity and functions.

 CO3: Learn Differentiation and its basic applications in Economics, to study how quickly quantities change over time, understand slope of a curve as rate of change.

 CO4: Study the concepts of increasing and decreasing functions, maxima and minima, and find its applications through functions familiar in Economics.

SEMESTER-2

AUMM 231.1a: MATHEMATICS FOR ECONOMICS -II (Sequences, Series and Multivariate Differential Calculus)

Course Outcomes:

CO1: Learn sequences and infinite series and apply it in determining the present discounted values and investment projects.

CO2: Learn exponentials and logarithms and their applications in solving economic problems such as, compound interest and present discounted values. CO3: Understand partial differentiation and its applications in Economics

SEMESTER-3

AUMM 331.1a: MATHEMATICS FOR ECONOMICS -III (Integral Calculus and Linear Algebra)

Course Outcomes:

CO1: Learn different methods integration and apply it to find the area under a curve.

CO2: Understand the applications of integration through functions familiar in Economics.

 CO3: Learn basics of matrix algebra.

SEMESTER-4

AUMM 431.1a: MATHEMATICS FOR ECONOMICS -IV (Linear Programming, Differential Equations and Difference Equations)

Course Outcomes:

CO1: To use linear programming methods in economic decision problems. CO2: To solve problems in Economics using different equations.

CO3: To learn various types of differential equations and methods to solve them

B A ECONOMICS (CBCS SYSTEM)

SEMESTER I

CORE I AUEC141: INTRODUCTORY MICROECONOMICS

6 hours **4 credits**

Course Outcomes:

CO1: Apply the concepts of utility analysis in optimizing choices.

CO2: Apply the concepts of elasticity of demand and supply in real life context.

CO3: Understand various concepts of production and cost and find out their relationship.

CO4: Analyze the features and price-output decisions of a perfectly competitive market and compare it with real-market situations.

SEMESTER- II

CORE II AUEC241: INTERMEDIATE MICROECONOMICS

6 Hours **4 credits**

Course outcomes:

CO1: Compare and contrast different non-competitive market structures.

CO2: To apply game theory to make optimal group decisions.

CO3: To understand factor pricing methods and compare it with existing factor pricing mechanism.

CO4: To create awareness on externalities and its impact on social welfare.

SEMESTER III

FOUNDATION COURSE II AUEC342: INFORMATICS FOR APPLIED ECONOMETRICS

4 Hours **3 Credits**

Course outcomes:

CO1: To give a general understanding of statistical concepts which are applied in economic analysis and to give a general academic research orientation.

CO2: To give an in-depth knowledge on the methodology of econometrics and to introduce the various statistical software used in econometrics.

CO3: To comprehend the basic idea behind two variable regression analysis

CO4: To study in detail the simple linear regression model

CORE III AUEC341: INTRODUCTORY MACROECONOMICS

5 Hours **4 credits**

Course outcomes:

CO1: Applying the national income concepts in the estimation of macro- economic aggregates using real time data.

CO2: Understanding the contributions made by classical economists in macroeconomics.

CO3: Analyzing the role of government in stabilizing the macroeconomy.

CO4: Applying the concepts of proportionality and non-proportionality in consumption using secondary data.

SEMESTER IV

CORE IV AUEC441: MATHEMATICAL METHODS FOR ECONOMICS

5 Hours **4 Credits**

Course outcomes:

CO1: To acquaint the students with adequate mathematics base for comprehending economics.

CO2: To study the basics of matrix algebra and apply it in various economic scenarios.

CO3: To apply the techniques of differentiation to various economic analyses.

CO4: To apply the techniques of integration to various economic analyses.

CORE V AUEC442: INTERMEDIATE MACROECONOMICS

4 Hours **3 credits**

Course outcomes:

CO1: To evaluate the effectiveness of coordination in fiscal and monetary policy in stabilizing the economy.

CO2: To understand the concepts of Classical and Keynesian versions of demand for and supply of money.

CO3: To analyze the concepts of inflation and unemployment.

CO4: To compare and contrast the ideas of different macroeconomic schools of thought.

SEMESTER V

CORE VI AUEC541: METHODOLOGY OF ECONOMICS AND RESEARCH

4 Hours **4 Credits**

Course outcomes:

CO1: To appraise need for interdisciplinary approach in social sciences.
CO2: To evaluate methodology of economic theorizing and limitations of its application
CO3: To identify a research problem and develop research design based on literature review
CO4: To apply data interpretation and analysis techniques in research using informatics

CORE VII AUEC542: STATISTICAL METHODS FOR ECONOMICS

4 Hours **4 Credits**

Course outcomes:

The course is intended to familiarize the students with statistical tools and techniques and enable them to apply these tools in Economics.

CO1: To understand the basic concepts of central tendency, dispersion, correlation and regression in order to interpret empirical data.

CO2: To study the different types of index numbers, methods for calculating index numbers and tests of index numbers.

CO3: To analyse time series data and measure the trend through various methods.

CO4: To study the elementary theory of probability including probability distributions.

CORE VIII AUEC543: READINGS IN POLITICAL ECONOMY

4 Hours **4 Credits**

Course outcomes:

By the end of the course students will be able to,

CO1: Apply political economy approach to understand the economic system in each period.

CO2: Apply economic ideas of classical economics in analyzing current economic events

CO3: To compare and contrast Classical and Keynesian perspectives on capitalism

CO4: To critically evaluate capitalist economic systems.

CORE IX AUEC544: ECONOMIC GROWTH AND DEVELOPMENT

3Hours **3 Credits**

Course Outcome:

CO1: To analyze various indices of development.

CO2: To comprehend the ideas of various growth models

CO3: To summarize various approaches taken by the development economists for transforming an underdeveloped economy.

CORE X AUEC545: INTERNATIONAL ECONOMICS

4 Hours **3 Credits**

Course Outcomes:

CO1: Critically analyse the relevance of various international trade theories and its feasibility in present context.

CO2: Evaluate the global trade policy and examine its impact on domestic trade environment

CO3: Appraise the volatility in foreign exchange and analyse its impact on multilateral trade relations

CO4: Identify the role of various international institutions in the economic development of India

OPEN COURSE AUEC581: INTRODUCTORY ECONOMICS

3 Hours **2 Credits**

Course Outcomes:

CO1: To understand basic principles of economics

CO2: To learn cost concepts and its application in economics

CO3: To understand macroeconomic variables and apply them to evaluate status of Indian economy

CO4: To evaluate role of international institutions in economic development

SEMESTER VI

CORE COURSE XI AUEC641: INDIAN ECONOMY

5 Hours **4 Credits**

Course Outcomes:

CO1: To enable students to analyze the growth and development strategies during pre-independence and post-independence period.

CO2: Enable students to identify growth strategies in agriculture and industry sector.

CO3: To comprehend the role of service sector and trade in Indian economy as an engine of growth

CO4: Enable students to critically evaluate the first, second and third generation economic reforms in India

CORE COURSE XII AUEC642: FINANCIAL ECONOMICS

4 Hours **4 Credits**

Course Outcomes:

CO1: Understand the concepts relating to financial economics
CO2: Explain the functioning of money and capital market
CO3: Evaluate monetary policy of Central Bank and its impact on financial markets
CO4: Explore opportunities available in financial markets and the sources of finance and gain the capacity to participate in financial markets and analyze the major trends and patterns in the financial markets.

CORE COURSE XIII AUEC643: PUBLIC ECONOMICS

5 Hours **4 Credits**

CO1: To understand the meaning, subject matter and scope of public finance
CO2: To identify the relative importance of different sources of public revenue and develop basic knowledge of public expenditure and its theories
CO3: To Analyze the role of public debt in various economic activities and the budgetary process in India.
CO4: To comprehend role of federalism in the center – state financial relations

CORE COURSE XIV AUEC644: ENVIRONMENTAL ECONOMICS AND DISASTER MANAGEMENT

4 Hours **3 Credits**

Course Outcomes:

CO1: To get a basic understanding of the various concepts of environmental economics and environmental issues.

CO2: To comprehend the theory of externalities

CO3: To analyze the various environmental policy tools

CO4: To know the global environmental issues

CO5: To understand the process of Disaster Management in India

ELECTIVE COURSE AUEC691.a: KERALA ECONOMY

4 Hours **2 Credits**

Course Outcomes:

CO1: To critically evaluate development strategies of Kerala since formation

CO2: To analyse demographic features of Kerala economy and its repercussions

CO3: To understand sectoral contribution and current status of Kerala economy

ELECTIVE COURSE AUEC691.b: MATHEMATICAL ECONOMICS

4 hours 3 credits

Couse outcomes

CO1: To understand the basic concepts in mathematics and to apply it in economic analysis

CO2: To analyse various economic concepts by using mathematical methods

CO3: To apply mathematical techniques in finding solutions of economic problems

CO4: To identify the mathematical derivations of various concepts in economics

ELECTIVE COURSE AUEC691.c: INTRODUCTORY ECONOMETRICS

4Hours 2 credits

Course Outcomes

CO1: To understand the nature, scope and methodology of econometrics.
CO2: To get a thorough knowledge to apply the situations by which simple linear regression model is to be used.
CO3: To apply the regression analysis in solving various economic problems.
CO4: To identify the situation of the violations of classical assumptions and acquaints with its remedies.

ELECTIVE COURSE AUEC691.d: HISTORY OF ECONOMIC THOUGHT

4 Hour 2 credits

Course Outcomes

CO1: To understand the economic thoughts of the great philosophers in the ancient times.
CO2: To compare the views classical thinkers of economics like Adamsmith, Recardo, Malthus etc.
CO3: To get a deep knowledge about Karl Marx views on Political economy
CO4: To appraise the economic thoughts of various political and economic thinkers of India**.**

AUEC645 PROJECT

Instructional Hours: 6 (3 Hours each in V and VI Semester) 4 Credits

Course Outcomes:

CO1: Identify a research issue and develop research questions

CO2: Apply different methods of evaluating a research issue.

CO3: Analyse the actual nature and intensity of the issue and how it affects economic development

CO4: Evaluate the research issue

BA JOURNALISM AND MASS COMMUNICATION

SEMESTER I

INTRODUCTION TO MASS COMMUNICATION	
Objective	The course exposes the students to the basics of communication studies and familiarize them with different perspectives exist in this faculty. The concepts of the communication are discussed to evaluate and apply in Mass Media applications. The students are encouraged to build a foundation for themselves for advanced studies in communication through this course.
COURSE OUTCOMES	
CO1	Acquisition of systematic knowledge of communication process, types and barriers
CO2	Understanding of various concepts of Mass Communication and types of Mass Media
CO3	Exposure to models of communication and various aspects of non-verbal communication
CO4	Awareness about the role of media in society and ability to discern mass media audience characteristics

HISTORY OF MEDIA	
Objective	Understanding the history and evolution of Indian Media and its role in social renaissance and freedom movement is the primary objective of this course. This course also discusses the history of Malayalam Press, Radio and Television in India.
COURSE OUTCOMES	
CO1	Historical knowledge of Indian Press, it's role in social renaissance and freedom movement
CO2	Understanding of the evolution and growth of Malayalam Press, its role in pre and post independent India
CO3	Exposure to the history of Radio and Television in India

CO4	Ability to build historical perspectives while engaging in contemporary mass media discourses.

REPORTING			
Course code: AUJC142	**Core Course 2**	**2 Hrs/Week**	**2 Credits**
Objective	Skill development to identify news worthy events as well as knowledge in various concepts that determines news values are achieved through this course. Reporting for both print and electronic media, news room operations and current trends in reporting are discussed in this course to equip the students to handle real life situations.		
COURSE OUTCOMES			
CO1	Get to know the guiding principles of news and news values		
CO2	Understanding of the functioning of reporting wing of a news organisation		
CO3	Gaining practical knowledge in reporting matters of public interest		
CO4	Acquisition of knowledge in doing specialised reporting, news planning and various presentation formats		

EDITING	
Objective	The course aims at improving the editing skills, creative thinking while planning and designing news content and giving exposure to various tools, methods and formats of editing.
COURSE OUTCOMES	
CO1	Understanding principles of news editing, translation and packaging content for print media
CO2	Knowledge in newsroom operations, functioning of various departments and
	work flow
CO3	Exposure to page design, technical tools, production and publication of newspapers
CO4	Applying aesthetics, style and innovative formats in packaging a newspaper

SEMESTER II

INTRODUCTION TO ENVIRONMENTAL STUDIES	
COURSE OUTCOMES	
CO1	Understanding of the importance of sustainable development by keeping the environmental resources intact for future generations
CO2	Gaining scientific knowledge about environment, eco system, energy sources and factors influencing the deterioration nature and environment
CO3	Analysis of effective management of natural resources, conservation of such sources and causes of natural and man-made disasters
CO4	Sensitisation of ill effects of global warming, climate change and the international debates on such issues, legal framework for environment conservation, social impact of the unsustainable development programmes and gain awareness lessons through field trip.

AUDIO-VISUAL COMMUNICATION			
Course Code : AUJC251	**Vocational Course 2**	**3 Hrs/Week**	**3 Credits**
Objective	This course aims at imparting basic scientific knowledge in sound and visuals. The course will help the students to easily understand the audio- visual media tools which are used in broadcasting and video production.		
COURSE OUTCOMES			
CO1	Knowledge in technical and content oriented aspects of Audio-Visual Media		
CO2	Understanding of principles of sound and how it can effectively utilised for communication		
CO3	Exposure to the visual language and basic know-how of construction of AV programmes		
CO4	Discernment of sound elements and introduction to sound design		

PHOTO JOURNALISM			
Course code: AUJC252	**Vocational Course 3**	**3 Hrs/Week**	**3 Credits**

Objective	This course aims to train students in the fundamentals of photography and give them professional training to socialize in news photography.
COURSE OUTCOMES	
CO1	Knowledge in the basics of photo journalism, difference of photography and photo journalism and awareness of legal and ethical considerations of photo journalism
CO2	Acquisition of skills in photography, knowing the fundamentals, updated know-how of technology
CO3	Ability to explore 'visual quality'- application of visual considerations in print designs using photographs
CO4	Ability to discern various types of photography and acquire skills to perform the tasks

SEMESTER III

THEORIES AND METHODOLOGY OF MASS COMMUNICATION	
Objective	This course builds a theoretical framework for students and helps them to understand the different perspectives of media content in different contexts. The course is a stepping stone to the academic knowledge in communication studies.
COURSE OUTCOMES	
CO1	Understanding on the basic theories of Mass Communication Studies
CO2	Exploration of the application value of theories of media studies in real life situations
CO3	Exposure to the learning process of Mass Communication from the perspectives of media process, content and media consumers
CO4	Ability to analyse the sociological and psychological dimensions of media studies and analysis

FEATURE WRITING AND MAGAZINE JOURNALISM			
Course code: AUJC341	**Core Course 4**	**4 Hrs/Week**	**3 Credits**

Objective	Through this course students would be familiar with various writing styles for magazines, topic selection, new trends in feature writing etc. The narratives in journalism are discussed here.
COURSE OUTCOMES	
CO1	Analyse the content of various types of magazines published from India
CO2	Ability to distinguish between the journalism practices and styles employed in magazine journalism and newspaper journalism
CO3	Acquisition of skills in magazine design and content generation
CO4	Ability to understand the nuances of feature writing and construction of long form narratives

RADIO BROADCASTING

Course code: AUJC351	**Vocational Course 4**	**4 Hrs/Week**	**3 Credits**
Objective	Different radio formats and their production aspects are studied through this course. The course also seeks to impart skills in writing for the ear and its co-existence with available technologies.		
COURSE OUTCOMES			
CO1	Knowledge in the nuances of Radio Programme Production		
CO2	Acquisition of technical knowledge in Radio Broadcasting and exposure to journalism for Radio		
CO3	Training in the art and craft of sound recording		
CO4	Exposure to programming in commercial FM Radio stations		

TELEVISION: PRINCIPLES AND PRACTICE

Objective	The technical and aesthetic aspects of television production, steps involved in the production, from idea generation to telecast, are being discussed in this course. The course also covers video editing and TV news packaging and basic knowledge about the functioning of a TV newsroom
COURSE OUTCOMES	
CO1	Acquisition of skills in camera, lighting and sound- understanding the principles of visual productions

CO2	Knowledge in visual editing to form a complete narrative and know-how in the systematic flow of TV programming
CO3	Exposure to TV news packaging and basic news room operations.
CO4	Awareness about the legal and ethical framework of telecasting

SEMESTER IV

PUBLIC RELATIONS AND CORPORATE COMMUNICATION

Objective	The course aims to train the students in the emerging fields of mass communication. The principles and practices of Public Relations and Corporate Communication are discussed in this course to enable the students to acquire knowledge and skills essential for job market.

COURSE OUTCOMES

CO1	Knowledge about PR concepts and Corporate Communication and its importance
CO2	Understanding the significance of organizational image
CO3	Know how to develop PR programmes
CO4	Understand the importance of creating and maintaining better media relations.

ADVERTISING

Objective	Advertising is a very specialized area in mass communication where the aspirants require a special set of skills which can be acquired through observation and synthesis. The course structures a frame work for students who have aptitude in similar areas.

COURSE OUTCOMES

CO1	Impart historical understanding in the evolution of advertising
CO2	Provide theoretical foundations of advertising to help delineate and imbibe its power as a persuasive mode of communication
CO3	Attribute skills in the art and craft of advertising
CO4	Exposure to advertising in various mass media forms

INTRODUCTION TO CINEMA

Objective	To enable the students explore films historically and critically. The course also introduces the basic steps in film making.
COURSE OUTCOMES	
CO1	Ability to analyse and understand Cinema as an art form. Trace the historical origins of cinema and its interactions with political and social life of mankind
CO2	Knowledge about important film movements
CO3	Understanding of the process of film making
CO4	Exposure to the journey of Indian and Malayalam Cinema

DOCUMENTARY FILM

Objective	The course provides theoretical knowledge on the historical evolution of documentary films and the current trends in this genre. It also discusses production aspects and hands-on training on documentary film making. This course improves the capability of students to approach a subject critically and make it into a comprehensive television documentary.
COURSE OUTCOMES	
CO1	Trace the history of documentary films in India and abroad
CO2	Distinguish the philosophy of documentary films with specific focus on art house film making and broadcast journalism
CO3	Master the art of documentary film making
CO4	Explore the current trends of documentary film making in India and abroad

SEMESTER V

MALAYALAM JOURNALISM

Objective	To explore the current trends and to gain historic understanding of the evolution of Malayalam journalism.
COURSE OUTCOMES	
CO1	Understand the historical origins of Malayalam Journalism
CO2	Study various genres of Malayalam Journalism

CO3	Learn the current trends of journalism in Kerala
CO4	Explore effective use of Malayalam language in journalism practices including visual media

INTERCULTURAL COMMUNICATION	
Objective	To impart the concept of culture and its social interactions in a highly mediated and mediatised world with special reference to communication and its meaning-making processes.
COURSE OUTCOMES	
CO1	Understand the concepts, definitions and schools of thoughts on culture
CO2	Study the social interaction of culture with communication
CO3	Analyse the role of Mass Media in culture and communication
CO4	Discern the instruments of intercultural communication

MEDIA LAWS AND ETHICS	
Objective	To create awareness among students on various ethical issues involved in day-to-day journalism and provide a thorough understanding on the legal frame work within which mass media functions in India.
COURSE OUTCOMES	
CO1	Historical knowledge about the evolution of press laws in India
CO2	Exposure to major provisions of active press laws in India
CO3	Understanding of Indian constitution within a media freedom framework
CO4	Awareness about the significance of ethical media practices

INTRODUCTION TO COMMUNICATION RESEARCH	
Objective	This course is aimed at giving exposure to students to Mass Media Research. The data collection and analysis techniques on the basis of existing knowledge will empower them to build critical thinking abilities and scientific analytical skills.

COURSE OUTCOMES	
CO1	Knowledge in various approaches of research and areas of research that can be pursued upon.
CO2	Ability to define problem and frame a concrete research plan to find solutions to problems
CO3	Skills in quantitative data collection, analysis and presentation of results
CO4	Exposure to qualitative techniques of research

VIDEO PROJECT (Practical)

Guidelines for the production and submission of Graduate Video Project in the Fifth Semester of First Degree Programme in Journalism, Mass Communication & Video Production.

COURSE OUTCOMES	
CO1	Hands on training on three stages of visual production.
CO2	Solidifying ideas for visual production through research, brainstorming and field work
CO3	Execution of the project with the help of available technological tools.
CO4	Analysis of the production and critical reflection on final outcome

OPEN COURSES OFFERED BY THE DEPT. OF JOURNALISM AND MASS COMMUNICATION IN FIFTH SEMESTER

FILM APPRECIATION

Objective	This course aims at introducing film as a 21st century art form through it's history and evolution. The course also imparts basics of film making and enables the students to appreciate films as an aesthetical visual narrative.

COURSE OUTCOMES

CO1	Trace the history, politics and philosophy of World and Indian Cinema
CO2	Exposure to basics of film making
CO3	Impart knowledge and cultivate better tastes to appreciate a film
CO4	Explore various film movements and studies of contemporary world, Indian and Malayalam Cinema

COMMUNICATION SKILLS	
Objective	This open course expose students from disciplines other than Mass Communication, to the basics of effective communication, process of communication, and effective communication practices.
COURSE OUTCOMES	
CO1	Students will have the knowledge about various aspects of effective communication.
CO2	Awareness about types of communication and nuances of nonverbal communication
CO3	Ability to use language as an effective tool in communication
CO4	Knowledge about mass media forms and how the process of communication is being carried out in Mass Communication scenarios.

SEMESTER VI

DEVELOPMENT COMMUNICATION	
Objective	The course introduces major theories of development and development communication and builds a perspective for development journalism. It also discusses the role of media in development and shares some experiences from India and abroad.
COURSE OUTCOMES	
CO1	Knowledge about the core concepts and theories of development, development communication and development journalism
CO2	Sensitisation of development communication in practice
CO3	Exploration of the scope of development communication in areas such as agriculture, environment, poverty eradication etc.
CO4	Awareness on the functions of agencies of development and development communication.

BUSINESS AND FINANCIAL JOURNALISM	
Objective	This course provides the basic knowledge on how business journalism is being practiced in newspapers, television channels and magazines. It also introduces the basic structure of Indian and Kerala economy with a global perspective. The students are exposed to the fundamentals of financial market operations through this course.
COURSE OUTCOMES	
CO1	Introduction of basic concepts and theories of Economics
CO2	Provide an overview and salient features of Indian Economy and Kerala Economy
CO3	Impart basic skills required for a business and financial journalist
CO4	Explore the current trends in business journalism
ADVANCED TELEVISION PRODUCTION	
Objective	The course discusses in-depth understanding of production aspects of various television formats and on-screen presentations.
COURSE OUTCOMES	
CO1	Provide an overview of EFP, Live telecast and latest TV production techniques
CO2	Impart basic skills required for a TV producer/director
CO3	Improvement of on-screen presence: Imparting skills required for an anchor, presenter
CO4	Introduction of graphics of various television formats

ONLINE MEDIA AND DATA JOURNALISM	
Objective	This course discusses the developments in communication and media technologies, convergence of media and its applications in journalism.
COURSE OUTCOMES	
CO1	Explore the possibilities of Internet as a mass medium
CO2	Learning of using journalistic skills in Cyber Media

CO3	Introduction of computer technology and web page designs
CO4	Exposure to internet applications of traditional media forms

ELECTIVE COURSES OFFERED BY THE DEPT. OF JOURNALISM AND MASS COMMUNICATION IN SIXTH SEMESTER

MULTI MEDIA PRODUCTION

Objective	This course discusses the theoretical and practical aspects of the Multimedia Production and introduces new technologies and its application to students.
COURSE OUTCOMES	
CO1	Introduction to multimedia applications in media industry and services
CO2	Understanding the visual language and its usage in various media applications
CO3	Exposure to design principles, techniques and applications
CO4	Learning the step by step process of multimedia production

D. S. Sherawat & Sanjay Sharma (2010), Multimedia Applications, New Delhi, SS Kataria & Sons

Judith Jeffcoate, Multimedia in Practice, New Delhi, Pearson Education

J. Nielson (1995), Multimedia and Hypertext, London, Academic Press

SCIENCE JOURNALISM

Objective	The course provides specialized knowledge and skills in reporting science related matters and gives an overview of the methods to be adopted in analyzing subjects related to science.
COURSE OUTCOMES	
CO1	Introduction to specialised reporting of Science related matters
CO2	Learning the art of dealing with scientific data
CO3	Acquiring skills to write scientific stories in common man's language
CO4	Specific study of reporting of environment, agriculture, IT etc.