Course Outcomes (COs) of B. Sc. Honours (Electronics)

On the completion of the Course, which spread across six semesters having Fourteen Core papers and four Discipline Specific Elective papers, students will be able to –

CO-1:- Gathering the concepts of basic circuit components like resistance, capacitor, inductor, diode, transistor, FET, ...etc. about their characteristics and uses.

CO-2:- Acquiring knowledge about the function of different components with mathematical analysis and basic physics of components.

CO-3:- Acquiring knowledge about basic Physics and fundamental mathematics related to Electronics.

CO-4:- Gathering knowledge about the tele- communication system including antenna, transmission line, wave guide, satellite communications and the different types of modulation and demodulation process like AM, FM, PM, PCM, DPCM.....etc.

CO-5:- Students have gathered knowledge about theoritically and practically about the Microprocessor and Microcontrollers.

CO-6:- Specially students are able to make printed circuit board (PCB) their self and can also find out the fault of any basic circuits. Finally they are able make a major project included in their whole syllabus.

C-- 1 :এই কাকতৰ যোগেদি প্ৰথমে অসমীয়া সাহিত্যৰ যুগ বিভাজনৰ পৰিচয়েৰে ছাত্ৰ ছাত্ৰীসকলক অসমীয়া সাহিত্যৰ সমগ্ৰ পৰিক্ৰমাৰ এক সাধাৰণ পৰিচয় প্ৰদান কৰি লৈ তাৰ পিছত লোক সাহিত্যৰ পৰা শংকৰোত্তৰ যুগলৈকে ৰচিত অসমীয়া সাহিত্যৰ সামগ্ৰিক গতি-প্ৰকৃতিৰ ধাৰণা দিবলৈ বিচৰা হৈছে ।

C--- 2 : সাহিত্যৰ বুৰঞ্জীৰ অন্তৰ্গত ভাৱে ছাত্ৰ ছাত্ৰীসকলক আধুনিক অসমীয়া ভাষা সাহিত্যৰ প্ৰতিষ্ঠা কালৰে পৰা সাম্প্ৰতিক কাললৈকে সাহিত্যৰ গতি প্ৰকৃতিৰ ধাৰণা প্ৰদানেই এই কাকতৰ মূল বিষয় ।

C---3 : প্ৰাচ্য আৰু পাশ্চাত্যৰ ভাষা সম্পৰ্কীয় চিন্তা চৰ্চাৰ ইতিহাস জনাৰ লগতে ভাষা আৰু ভাষাবিজ্ঞান সম্পৰ্কীয় বিভিন্ন দিশ সমূহৰ পৰিচয় এই কাকতখনত সামৰি লোৱা হৈছে ।

C--4 : অসমীয়া সাহিত্য অধ্যয়নৰ তাত্বিক আধাৰৰূপে ভাৰতীয় তথা পাশ্চাত্য সাহিত্যতত্বৰ জ্ঞান প্ৰদানৰ বাবে এই কাকতখন প্ৰস্তুত কৰা হৈছে ।

C--5 : সাহিত্য সমালোচনাৰ বিভিন্ন পদ্ধতি আৰু সাহিত্যৰ স্বৰূপৰ অধ্যয়ন এই কাকতত সন্নিৱিষ্ট কৰা হৈছে ।

C-6 :লোককবিতাৰ সামগ্ৰিক আলোচনাৰ লগতে অসমীয়া কবিতাৰ ইতিহাসক এই কাকতে সামৰি লৈছে ।

C-7 : সংস্কৃতিৰ সাধাৰণ ধাৰণাৰ লগতে অসমৰ নৃগোষ্ঠী আৰু সংস্কৃতিৰ সামগ্ৰিক আলোচনা এই কাকতৰ বিষয়বস্তু ।

C--- 8 : তুলনামুলক সাহিত্যৰ সাধাৰণ ধাৰণা আৰু নিৰ্বাচিত ভাৰতীয় সাহিত্যৰ আলোচনা এই কাকতে সামৰি লৈছে ।

C--9 : ভাৰতীয় আৰ্য ভাষাৰ ক্ৰমবিকাশৰ ৰূপৰেখা আৰু সংস্কৃত ,পালি প্ৰাকৃত ভাষাৰ ব্যাকৰণৰ বৈশিষ্ট্য এই কাকতৰ বিষয়বস্তু ।

C--- 10 : অসমীয়া গদ্য সাহিত্যৰ বিকাশৰ বিভিন্ন ধাৰাৰ লগতে ভট্টদেৱৰ পৰা সাম্প্ৰতিক অসমীয়া গদ্যলৈকে ইয়াত সামৰি লোৱা হৈছে ।

C--11: অসমীয়া নাট্য সাহিত্যৰ ইতিহাস আৰু নিৰ্বাচিত নাটকৰ আলোচনাৰ জৰিয়তে ছাত্ৰ ছাত্ৰীৰ নাট্য সাহিত্যৰ গতিবিধি জ্ঞান প্ৰদানৰ বাবে এই কাকতখন প্ৰস্তুত কৰা হৈছে।

V12 : অসমীয়া ভাষাৰ ধ্বনি তত্ব ,ৰূপতত্ব আৰু বাক্য তত্বৰ পৰিচয় পাবলৈ এই কাকতৰ বিষয়বস্তু প্ৰস্তুত কৰা হৈছে ্ৃ

DSE 1-- অসমীয়া ভাষাৰ শুদ্ধ উচ্চাৰণ ,আখৰ জোটনি , জতুৱা ঠাঁচ আৰু খণ্ডবাক্যৰ সঠিক জ্ঞান প্ৰদানৰ বাবে এই কাকতখন প্ৰস্তুত কৰা হৈছে ।

DSE 2-- বহু ভাষাৰে প্ৰকাশ কৰা ভাৰতীয় সাহিত্যৰ একক ৰূপৰ পৰিচয় প্ৰদান লগতে নিৰ্বাচিত ৰচনাৰ জৰিয়তে ছাত্ৰ ছাত্ৰীসকলৰ ভাৰতীয় সাহিত্য সম্পৰ্কে জ্ঞান দিবলৈ কাকত খন প্ৰস্তুত কৰা হৈছে ।

Course Outcome in Botany

1) Students pursuing Botany subject will know all the fundamentals of plant and its related sciences which includes microscopic bacteria to giant trees, their structure, classification, physiology, genetics, metabolism, evolution and reproduction.
2) The study on microbiology will get and opportunity in the field of industrial development as food technology, dye industry, agricultural sector, medicine, etc. Besides the mycological study will help in the pathological studies of plants and animal as well as their ecological role. The rich diversity of micro organism in the tropical region can be evaluated.
3) The biotechnology and biomolecular characterization of the plants and plant cells study would be beneficial for the new drug formulation and drug designing. Genetical and cellular study of plant cells helps in understanding the evolution process and relationship among the various groups of plants. They will get job opportunities in the afforsaid sectors.
4) The study on economically important plant species will help the students to know the agricultural practice of different crop plants, find the market potential of various plant species as well as to select career as agriculturalist. Further they can develop entrepreneurship in this sector particularly by growing medicinal plants, floriculture, orchards, etc.
5) The syllabus on plant systematics, ecology and phytogeography helps the students in understanding the diversity of plant species, their ecological adaptation and geographical distribution. They can choose career as plant taxonomist in various institutes and academic sector. The present demand for plant taxonomist is enormous as they can only ascertain the plant diversity and their present distribution.
6) The ethnobotany helps the students to grain the traditional knowledge of plant in relation to different ethnic communities, their traditional culture as well as conserve to their traditional knowledge in relation to utility of plants in different prospective such as medicinal, aromatic, home garden, religious etc.
7)

Sibsagar College , Joysagar

Department of Economics

Course Outcomes (COs) of B. A. Honours

On the completion of the Course, which spread across six semesters having Fourteen Core papers and Two Discipline Specific Elective papers, students will be able to –

CO-1:- Construct a comprehensive concept as well as perception about essentials and introduction of economics.

CO-2:- Understand different issues both current and modern economic scenarios of India and the rest of the world.

CO-3:- Learn about the applications of mathematics and statistics in Economics.

CO-4:- Construct a comprehensive concept as well as perception about the different branches of Economics viz., Environmental Economics, Monetary Economics and Indian Economy and Public economics.

CO-5:- Prepare students for competitive exams through adequate knowledge of current socio-economic issues

Course Outcomes (COs) of B. A. Honours (History)

On the completion of the Course, which spread across six semesters having Fourteen Core papers and Two Discipline Specific Elective papers, students will be able to –

CO-1:- Construct a comprehensive concept as well as perception about History of India since early times till 1950 along with its sources

CO-2:- Understand the History of the World in the context of formation of society, economy and culture during ancient and medieval periods

CO-3:- Learn about the causes, courses and aftermaths of various events of the History of Europe from 14th Century till the beginning of World War II

CO-4:- Construct a comprehensive concept as well as perception about History of Assam in terms of polity, society and economy since early times till independence along with its sources

CO-5:- Understand Historiography in the global context as well as in the context of Indian tradition

Course Outcomes (COs) of B. A. Honours (Political Science)

On the completion of the Course, which spread across six semesters having Fourteen Core papers and Two Discipline Specific Elective papers, students will be able to –

CO-1:- Understand political theory, its history, and approaches, concepts related to State, Citizenship and Democracy and an assessment of its critical and contemporary trends

CO-2:- Clear understanding of Indian Constitution and its actual working over time, conflicts in constitutional provisions and how these have played out in political practices. The course also familiarizes the student's with the working of the Indian State, role of religion, caste and politics.

CO-3:-Have an insights into key contemporary global issues such as the proliferation of nuclear weapons, ecological issues, international terrorism, and human security.

CO-4:- Learn about the specific elements of Indian Political thought spanning over two millennia, and also the modern political philosophy of J.J. Rousseau, J. S. Mill, Karl Marx, Gransci, Alexandra Kollantai, Noan Chomsky.

CO-5:- Understand human rights in the global context as well as in the context of India.

CO-6:- Understand the politics of contemporary Assam and its neighboring states

Course Outcome
Department of Education
Course: Education (Honours)

On completion of the Course, which spread across six semesters having Fourteen Core papers and Two Discipline Specific Elective papers, students will be able to –

CO-1:- Describe the modern concept, aims, functions and role of education. Besides, the role of Philosophy in Education can be explained with basic tenants of the given Indian and Western Philosophies and their influence and contribution in Education.

CO-2:- Explain the concept, approaches and theories of educational sociology. Further they will be able to illustrate Social Aspects, Social Processes, Social Change and Development, Social Groups, different Political Ideologies and their role in Education vice versa.

CO-3:- Explain the concept, nature, scope and uses of psychology in Education. The concept and influence of growth and development, learning, intelligence, creativity personality, mental health and mental hygiene in education can also be described.

CO-4:- Define the concept; describe the types and modern trends of Educational management along with the concept and principles of educational leadership.

CO-5:- Describe the contribution of the selected philosophers in the domain of education and explain the relevance of the educational thought of the given philosophers.

CO-6:- Explain the meaning, nature, scope, need and types of measurement and evaluation in education. The meaning of psychological tests, their characteristics and process of construction some specific tools to measure achievement, intelligence, personality and aptitude can also be described. Further, the meaning and nature of different statistical measures and its uses in measurement and evaluation in education can also be clarified.

CO-7:- Develop hand on experience on how to conduct and report a psychological experiment.

CO-8:- Explain the concept of education in the context of Indian heritage particularly Vedic Buddhist Education and the education in Medieval and modern India. the educational scenario at the time of Independence, the roles of various Commissions and Committees

in the development of education in post independent India and the recent educational developments in India can also be described.

CO-9:- Explain the meaning and nature, principles, phases, methods and approaches of teaching. They can also be able to explain the importance of planning lessons in teaching-learning process along with teaching skills and the stages of microteaching cycle. Moreover, the objectives of teaching different subjects in Elementary and Secondary levels can be stated. Further, demonstrate a few teaching skills in classroom and integrate the teaching skills in real classroom situations with self prepared lesson plans in Micro and Practice teaching.

CO-10:- Describe the concept, nature and components of Educational Technology and communication, distinguish between Educational technology and Instructional Technology, apply ICT in teaching learning, demonstrate the skills of effective communication and apply Models of teaching, personalized system of instruction, programmed learning in teaching learning.

CO-11:- Explain the meaning and definition, nature, scope, purpose and methods of comparative education, describe the factors influencing in national system of education, explain the organization, administration, objectives, examination systems, vocational and teacher education, of the countries. UK, USA, India and Japan.

CO-12:- Explain the need of constitutional provisions for education, and the role of constitution in equalizing educational opportunities in the diverse Indian Society, identify the challenges of Indian education at different levels and suggest measures to overcome these, define the new perspectives of education such as Environmental education, Inclusive education, Gender education, Inclusive education, Adult education, Human right education, Value education, population education etc., critically examine and evaluate the initiatives taken by Government of India through various plans and policies to counter the challenges of Indian education, explain the political influences on the national education system and analyze the role of international agencies in development of education.

CO-13:- Explain the significance of a study of childhood and adolescence today, describe the developmental changes of childhood and adolescence, summarize the effect of family dynamics on child and adolescent development and explain the significance of the role of society in monitoring and guiding young children in their proper development.

CO-14:- Describe meaning, nature, purpose, scope, characteristics, functions, principles, types and areas of guidance and counseling, use various tools and techniques of guidance in appropriate context and explain the qualities and role of a counsellor.

CO-15:- Explain the concepts, need and importance of values and value education in the 21st century in creating a better world and explain the promotion of value through education.

CO-16:-Explain the concept of special education, integrated education, and inclusive education, discuss the global and national commitments towards the education of children with diverse needs, appreciate the need for promoting inclusive practice and the roles and responsibilities of all concerned personnel, analyse critically the recommendations of various commissions and committees towards teacher preparation for inclusive education, describe the nature of difficulties encountered by children and in preparing conducive teaching learning environment in inclusive schools, identify existing support services for promoting inclusive practice, describe the policy perspectives related to education of socially disadvantaged section in India an describe the schemes and programmes for education of socially disadvantaged groups.

CO-17:- Explain the meaning, definition, nature, scope, theories and constitutional perspectives of human rights, describe the concept, objectives, principles, need and curriculum, of human rights education, describe methods and activities of teaching human right education, describe the factors promoting human right education, describe the basics of human rights education i.e. societal, political, regionalism and limitations and explain the role of different agencies of human rights education.

CO-18:- Describe the meaning, scope and importance of Economics of Education, define and illustrate the concepts used in economics of Education, examine the historical development of Economics of Education, explain the concept of Education as a good, demand and supply of education, Utility of Education etc., explain the concept of

investment in education, return on investment in education, education as production process etc., explain the concepts of different types of Educational cost and examine the concepts of human capital formation, Education financing, Educational Planning etc.

CO:19:- Explain the meaning and nature of gender and its related terms, describe the gender biases and gender inequality in family, school and society, describe the gender issues related to school education and analyse the laws and policies related to gender equality.

CO: 20:- Explain the process of conducting a Project, identify the problems for Educational Project, solve problems faced in educational field through project and finally prepare a project report.

Course Outcome: Department of Chemistry:

Following are the course outcomes on completion of the B.Sc Chemistry (Honours) course that consists of six semesters having 14 core theory papers, 14 core practical papers, 4 Discipline Selective Elective papers and 4 Discipline Selective Elective practical papers.

CO-1: Students will have a firm foundation in the fundamentals and application of current chemical and scientific theories including those in Organic, Inorganic, Physical, Analytical chemistry and all other related allied chemistry subjects.

CO-2: Students will be able to use the evidence based comparative chemistry approach to explain the chemical synthesis and analysis.

CO-3: Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.

CO-4: Students will be able to understand the basic principle of equipments, instruments used in the chemistry laboratory.

CO-5: Students will appreciate the central role of chemistry in our society and use this as a basis for ethical behaviour in issues facing chemists including an understanding of safe handling of chemicals, environmental issues and key issues facing our society in energy, health and medicine.

CO-6: Students will be able to prepare for national as well as international competitive examinations, especially UGC-CSIR NET and UPSC Civil Services Examination.

MATHEMATICS

1. Formulate and develop mathematical arguments in a logical manner.
2. Acquire good knowledge and understanding in advanced areas of mathematics and statistics, chosen by the student from the given courses.
3. Understand, formulate and use quantitative models arising in social science, business and other contexts.
4. Students will possess basic subject knowledge required for higher studies, professional and applied courses like Management Studies, Law etc.
5. Students will acquire basic Practical skills & Technical knowledge along with domain knowledge of different subjects in the science stream.

Department of geology

Course Outcomes – CBCS 6th Semester B.Sc. in Geology

Honours Course

Sem	Course	Outcomes
I	C1	Earth System Science: in course allows students to gain knowledge about the fundamental concepts of earth sciences and also allows them to get introduced with different branches of geological science. It gives them the basis of physical geology.
	C2	Crystallography and mineralogy: it trains the students to identify different crystalline structures, their significances and minerals. It gives them idea about the physical and chemical properties of the minerals.
II	C3	Geochemistry and Optical mineralogy: it course is designed to get familiar with minerals and the geochemical prospects of mineralogical studies. This course also allows student to gain knowledge about the optical properties of the minerals necessary to identify minerals under petrological microscopes
	C4	Structural geology and plate tectonics: this course allows students to get idea about the types of deformations, deformational structures, way the stress acts and types of strains developed in rocks, origin of plate tectonics, different types of plate boundaries, features associated with different plate boundaries.
III	C5	Igneous Petrology: this course allows students to get familiar with the igneous rocks, process of formation of igneous rocks, classification of igneous rocks and descriptive knowledge about igneous provinces.
	C6	Sedimentary Petrology: this course allows students to get familiar with the sedimentary rocks, process of formation of sedimentary rocks, classification of sedimentary rocks and descriptive knowledge about sedimentary provinces.
	C7	Metamorphic Petrology: this course allows students to get familiar with the metamorphic rocks, process of formation of metamorphic rocks, classification of metamorphic rocks and descriptive knowledge about metamorphic provinces.
IV	C8	Palaeontology: life has been evolving since 2.5 million years of geological history. Palaeontology allows students to get the necessary idea about the identification and study of dead remains of the life forms existed along ago in the past pre-historic time. It gives them basic idea about different types of fossils, nomenclature, modes of fossilization, occurrences, and distribution in different geography. It also allows them to correlate and use these fossils in solving different geological problems.
	C9	Stratigraphic Principles and Indian Stratigraphy allows students to use principles of stratigraphic correlation and study in different geological provinces and obtain the idea of preparation of stratigraphic succession. It also allows them to get idea about the major stratigraphic divisions of Indian subcontinent.
	C10	Hydrogeology & Oceanography: this course allows them to get important idea about the hydrogeological significances of groundwater and surface water bodies. It helps them to relate connections between the surface and groundwater systems. It helps them to gain knowledge about the processes involved in movement of water in groundwater as well as surface water systems.
V	C11	Surveying & engineering geology: it allows students to acquire knowledge about the techniques of plane survey and levelling. It also allows them to

		obtain idea about the engineering techniques used in construction of various major project like dam, tunnel, bridge etc.
	C12	Geomorphology: this course allow the students to obtain detail knowledge about the features developed in different terrain configurations. It also helps them to identify and relate the exogenic and endogenic processes involved in development of various types of geomorphic features in environments like fluvial, Aeolian, glacial and coastal landscapes.
VI	C13	Economic geology, coal and petroleum: this course train out students to get important ideas about the processes of formation of different mineral deposits and identification of ore minerals. It also helps them to follow the basic steps of ore explorations. It helps them to study coal deposits, coal types and their occurrences. This course allows them to get basic ideas of the origin of petroleum, occurrences and distribution of petroleum in various geological settings of Indian subcontinent.
	C14	Remote sensing and GIS: RS and GIS are advance courses in geological science. It allows our students to get required knowledge for doing remote sense studies of geological phenomenon and processes by using satellite imageries and geographic information system.

Non-Honours Course

Sem	Course	Outcomes
I	DSC 1A	Introduction to Geology: in course allows students to gain knowledge about the fundamental concepts of geological science and also allows them to get introduced with different branches of geological science. It gives them the basis of physical geology.
II	DSC 3B	Palaeontology: life has been evolving since 2.5 million years of geological history. Palaeontology allows students to get the necessary idea about the identification and study of dead remains of the life forms existed along ago in the past pre-historic time. It gives them basic idea about different types of fossils, nomenclature, modes of fossilization, occurrences, and distribution in different geography. It also allows them to correlate and use these fossils in solving different geological problems.
III	DSC 1C	Structural geology and plate tectonics: this course allows students to get idea about the types of deformations, deformational structures, way the stress acts and types of strains developed in rocks, origin of plate tectonics, different types of plate boundaries, features associated with different plate boundaries.
IV	DSC 1D	Geomorphology, Remote Sensing and GIS: this course allow the students to obtain detail knowledge about the features developed in different terrain configurations. It also helps them to identify and relate the exogenic and endogenic processes involved in development of various types of geomorphic features in environments like fluvial, Aeolian, glacial and coastal landscapes. RS and GIS are advance courses in geological science. It allows our students to get required knowledge for doing remote sense studies of geological phenomenon and processes by using satellite imageries and geographic information system.

COURSE OUTCOME

DEPARTMENT OF ZOOLOGY

SIBSAGAR COLLEGE

1. It will provide the best opportunity to the learners to acquire knowledge and skill in the fundamental aspects of animals science and to undestand the various complex interactions among different living organisms.
2. It will be helpful to undersatnd the physiological processes of animals.
3. It will enable the learners to apply the knowledge and undersatnding of Zoology to one's own life and work.
4. It will be helpful in better undersatnding of different apsetcs of environment in general and biodiversity/wildlife in particular pertaining to their importance in our life and also towards their effective conservation.
5. A better understanding on different aspects of developmental as well as evolutionary processes of different groups of animals would be possible for the learners after completion of this course.
6. It would enable the learners to introduce themselves to the newer developments/advancements happening in the realsm of animal sciences.

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COURSE OUTCOMES: DEPARTMENT OF PHYSICS

COURSE: B.SC IN PHYSICS(CBCS MODE)

NATURE OF THE COURSE: CORE

Course Code: PHYSICS-C-I, Course Title: MATHEMATICAL PHYSICS – I ,
Course Outcomes: At the completion of this course, a student will be able to
1. Write a problem in Physics in the language of Mathematics.
2. Identify a range of diverse mathematical techniques to formulate and solve a problem in basic Physics.
3. Analyze some of the basic mathematical concepts and methods.
4. Apply the knowledge and understanding of these mathematical methods to solve problems in a number of elementary branches of Physics like mechanics, electromagnetic theory, statistical Physics, thermal Physics etc.
5. Learn computer programming and numerical analysis and know its role in solving problems in Physics. 6. Construct a problem in Physics computationally.

Course code: Physics-C- II Course title: MECHANICS
Course Outcomes: At the completion of this course, a student will be able to
1. Understand the basic concepts and ideas in mechanics- e.g. motion, force and torque, mass and moment of inertia, linear and angular momentum, kinetic energy and potential energy etc. by parallel studies of linear dynamics and rotational dynamics.
2. Understand the basic conservation laws by studying them in various mechanical systems including collisions, oscillations, gravitational systems etc.
3. Analyze simple harmonic oscillator in detail
4. Study planetary motions as a central force problem.
5. Understand the concept of frame of reference, importance of relative transformations and invariance of laws of Physics.
6. Realize the consequences of non-inertial frame in our real physical world.
7. Know about the peculiar phenomena of special relativity which are not seen in Newtonian relativity and to understand the concept of space-time.

Course code: PHYSICS–C III Course title: ELECTRICITY AND MAGNETISM
Course Outcomes: At the completion of this course, a student will be able to :
1. Gain basic knowledge of electricity and magnetism.
2. Understand the electrical and magnetic properties of matter in brief.
3. Understand the effect of electric field on magnetic field and the effect of magnetic field on current.
4. Understand the basic principle of the electrical circuit (AC) circuit and electrical networking.
5. Acquire the basic theoretical as well as experimental skill on electrical networking.

Course code: PHYSICS–C IV Course title: WAVES AND OPTICS
Course Outcomes: At the completion of this course, a student will be able to
1. Learn the basics of wave motion.
2. Know about the behavior of light due to its wave nature.
3. Identify and understand different phenomena due to the interaction of light with light and matter.
4. Analyze some of the fundamental laws and principles of light which is used in many important optical instruments.

Course Code : PHYSICS-C-V Course Title : MATHEMATICAL PHYSICS – II Nature of the Course :
Course Outcomes: At the completion of this course, a student will be able to
1. Write a problem in Physics (slightly more advanced than those in Mathematical Physics I) in the language of Mathematics.
2. Identify a range of diverse mathematical techniques to formulate and solve a problem in basic Physics.
3. Analyze some of the useful mathematical methods.
4. Apply the knowledge and understanding of these mathematical methods to solve problems in a number of fundamental topics in Physics.
5. Construct a problem in Physics computationally.

Course Code: PHYSICS C-VI Course Title: THERMAL PHYSICS

Course Outcomes: At the completion of this course, a student will be able to

1. Develop knowledge on the classical laws of thermodynamics and their application
2. Use the knowledge of thermodynamics in various applications in allied fields like Materials science, Condensed matter Physics, Atmospheric Physics, Solar Physics, etc.
3. Probe questions in varied fields of Physics, chemistry and biology based on principles of Thermal Physics.
4. Use the concept of thermodynamics in real world experiences
5. Develop critical and analytical thinking of the student on thermodynamics and allied disciplines

Course Code: PHYSICS-C-VII Course Title: DIGITAL SYSTEMS AND APPLICATIONS

Course Outcomes: At the completion of this course, a student will be able to :

1. Know about the basic laboratory equipment electronics.
2. Understand basic digital electronics concepts and devices.
3. Analyze digital circuits.

Course Code: PHYSICS-C-VIII Course Title: MATHEMATICAL PHYSICS-III

Course Outcomes: At the completion of this course, a student will be able to

1. Write a problem in Physics (slightly more advanced than those in Mathematical Physics I and II) in the language of mathematics.
2. Identify a range of diverse mathematical techniques/ideas to formulate, simplify and solve some problems in Physics.
3. Analyze some of the useful mathematical ideas and techniques.
4. Apply the knowledge and understanding of these mathematical methods to solve problems in a number of fundamental topics in Physics.
5. Construct a problem in Physics computationally and use simulations to design an experiment.

Course Code: PHYSICS-C-IX Course Title: ELEMENTS OF MODERN PHYSICS

Course Outcomes: At the completion of this course, a student will be able to

1. Understand the theoretical basis for the understanding of quantum Physics as the basis for dealing with microscopic phenomena.
2. Apply concepts of 20th Century Modern Physics to deduce the structure of atoms.
3. Explain the wave-particle duality of the photon.
4. Analyze the structure of matter at its most fundamental.
5. Develop insight into the key principles and applications of Nuclear Physics

Course Code: PHYSICS-C-X Course Title: ANALOG SYSTEMS AND APPLICATIONS

Course Outcomes: At the completion of this course, a student will be able to

1. Know about the basics of semiconductor PN junction, its various types and its application to different electronic circuits.
2. Understand bipolar junction transistor and its applications as amplifier and oscillators.
3. Familiarize with operational amplifiers, its applications and analysis.
4. Develop knowledge about analog to digital and digital to analog conversion techniques

Course Code: PHYSICS-C-XI Course Title: QUANTUM MECHANICS AND APPLICATIONS

Course Outcomes: At the completion of this course, a student will be able to

1. Know about the development of modern Physics and the theoretical formulation of quantum mechanics.
2. Know the applications of quantum mechanics in solving physical problems.

Course Code: PHYSICS-C-XII Course Title: SOLID STATE PHYSICS

Course Outcomes: At the completion of this course, a student will be able to

1. Familiarize with fundamentals of Solid State Physics.
2. Know about the structural, electronic and lattice vibration dependent behavior of solids.
3. Learn the basic concepts in hands on mode through laboratory experiments associated with the course.

Course Code: PHYSICS-C-XIII Course Title: ELECTROMAGNETIC THEORY

Course Outcomes: At the completion of this course, a student will be able to

1. Understand the physical and mathematical principles to provide in-depth analysis of the behavior of electricity and magnetism in matter.
2. Apply Maxwell's equations to explain the properties of the electromagnetic wave and its interaction with matter.
3. Analyze the principles and processes related to polarization, interference, and diffraction along with their applications to the development of wave-guide and optical fibers.

Course Code: PHYSICS-C-XIV Course Title: STATISTICAL MECHANICS

Course Outcomes: The Statistical Mechanics is one of the most important branches of Physics which is required to understand the properties of matter in bulk on the basis of the dynamical behaviors of its microscopic constituents. As such the objectives of this course are to

1. Introduce the basic concepts of Statistical Mechanics so that students will be able to cope-up with higher level of such course in future.
2. Develop the critically thinking ability of students to understand the diverse physical phenomena.
3. Develop the interest and ability among students to solved challenging physical problems by the application of techniques of Statistical Mechanics in future.

Course code: PHYSICS DSE -I Course title: CLASSICAL

Course Outcomes: After completing the course, a student will be able to

1. Understand the underlying facts in the development of classical mechanics and the advantages of its formulation over Newtonian mechanics.
2. Describe mechanics of a system in terms of equation of motion.
3. Understand Lagrangian formulation and Hamiltonian formulation of mechanics and their applications in mechanical problems.
4. Study the theoretical analysis of systems oscillating with small amplitudes.
5. Observe the peculiar phenomena when transformed from Newtonian relativity to special relativity and to understand the concept of space-time.

Course code: PHYSICS DSE -2 Course title: PHYSICS OF DEVICES AND INSTRUMENTS

Course Outcomes: After completing this course, a student will be able to :

1. Know about various devices like UJT, FET, MOSFET, CMOS etc. and its application to different electronic circuits.
2. Design rectifiers, passive and active filters, multivibrators etc.
3. Familiarize with the IC fabrication techniques.
4. Learn about digital data communication standards and also about communication systems

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