

RPA First Grade College

Rajajinagar, Bangalore – 10.

Bachelor of Science(B.Sc.)

Program Educational Objectives

1. Students develop teaching skills, subject knowledge in the course of their study which will help them to shine in various fields including education, IT, etc.
2. Students will develop the skill to write entrance exam conducted by IIT's/Universities to pursue PG and Integrated PhD and will become a great Mathematicians.
3. Students develop confidence to appear for SSC(CGL), IBPS, RRB and Civil services exam and will occupy higher posts in administrative level.
4. Students are provided with practical training, hands-on and project experience to meet the industrial needs.
5. Students are trained to demonstrate creativity, develop innovative ideas and to work in teams to accomplish a common goal.
6. Students are prepared to be employed in IT industries by providing expected domain knowledge.
7. To impart quality education in physics to students so as they become globally competitive physicist.
8. To create strong interest in physics so as students can further develop themselves through self-study.
9. To equip students to analyze and communicate physics facts, effectively in inter-disciplinary environment.

Program Outcomes

1. Acquires the ability to understand and analyze the problems.
2. Formulates and develops mathematical arguments in logical manner.
3. Enhances logical reasoning skills, arithmetic skills, aptitude skills, communication skills, self confidence for better employability.
4. Apply knowledge of computer science to identify, analyze problems and to provide effective solution in the area of computing.
5. Inculcate skills to excel in the fields of IT and its enabled services, Government and Private sectors, Teaching and Research.
6. Ability to design, develop algorithms and provide software solutions to cater the industrial needs.
7. Able to provide a systematic understanding of core physical concepts, their theories and applications.
8. Able to apply the modern measurement technology, including Optics, Analog Electronics, laboratory test equipment by critical understanding and analysis.
9. Students will have an ability to design and conduct experiments as well as to analyze and interpret data.

Sem	Paper	Title of the paper	Hours /Week	Marks			Credits
				IA	Exam	Total	
I	PHY T101	Mechanics – 1, Heat and Thermodynamics – 1	4	30	70	150	2
	PHY P102	Practical Physics – I	3	15	35		1
	Theory	Mathematics - I	4	30	70	150	2
	Practical	Mathematics - I	3	15	35		1
	CS1T	Programming Concepts using C	4	30	70	150	2
	CS1P	C Programming Lab	3	15	35		1
II	PHY T201	Mechanics – 2, Heat and Thermodynamics – 2	4	30	70	150	2
	PHY P202	Practical Physics – II	3	15	35		1
	Theory	Mathematics - II	4	30	70	150	2
	Practical	Mathematics - II	3	15	35		1
	CS2T	Data Structures	4	30	70	150	2
	CS2P	Data Structures Lab	3	15	35		1
III	PHY T301	Electricity and Magnetism	4	30	70	150	2
	PHY P302	Practical Physics – III	3	15	35		1
	Theory	Mathematics - III	4	30	70	150	2
	Practical	Mathematics - III	3	15	35		1
	CS3T	Database Management System and Software Engineering	4	30	70	150	2
	CS3P	DBMS Lab	3	15	35		1
IV	PHY T401	Optics and Fourier Series	4	30	70	150	2
	PHY P402	Practical Physics – IV	3	15	35		1
	Theory	Mathematics - IV	4	30	70	150	2
	Practical	Mathematics - IV	3	15	35		1
	CS4T	Operating System and Unix	4	30	70	150	2
	CS4P	UNIX Programming Lab	3	15	35		1
V	PHY T501	Statistical Physics, Quantum Mechanics-I, Atmospheric Physics and Nano materials	3	30	70	150	2
	PHY P502	Practical Physics – V(A)	3	15	35		1
	PHY T503	Astrophysics, Solid state physics and Semiconductor physics	3	30	70	150	2
	PHY P504	Practical Physics – V(B)	3	15	35		1
	Theory	Mathematics - V	3	30	70	150	2
	Practical	Mathematics - V	3	15	35		1
	Theory	Mathematics - VI	3	30	70	150	2
	Practical	Mathematics - VI	3	15	35		1

Sem	Paper	Title of the paper	Hours /Week	Marks			Credits
				IA	Exam	Total	
V	CS5T1	Object Oriented Programming Using JAVA	3	30	70	150	2
	CS5P1	Java Programming Lab	3	15	35		1
	CS5T2	Visual Programming	3	30	70	150	2
	CS5P2	Visual Programming Lab	3	15	35		
VI	PHY T601	Atomic, Molecular and Nuclear Physics	3	30	70	150	2
	PHY P602	Practical Physics – VI(A)	3	15	35		1
	PHY T603	Electronics, Magnetic materials, Dielectrics and Quantum mechanics-II	3	30	70	150	2
	PHY P604	Practical Physics – VI(B)	3	15	35		1
	Theory	Mathematics - VII	3	30	70	150	2
	Practical	Mathematics - VII	3	15	35		1
	Theory	Mathematics - VIII	3	30	70	150	2
	Practical	Mathematics - VIII	3	15	35		1
	CS6T1	Web Programming	3	30	70	150	2
	CS6P1	Web Programming Lab	3	15	35		1
	CS6T2	Computer Networks	3	30	70	150	2
	CS6P2	Project Lab	3	15	35		1

BSc I Sem

Subject: Mechanics – 1, Heat and Thermodynamics – 1 Paper I-Phy-T101:

Course Objectives

1. To provide a thorough knowledge and perform experiments related to work, energy, motion, friction.
2. To understand the idea which forms the basis of the kinetic theory of gases, three gas laws, principle of equipartition of energy
3. To know about the degrees of freedom of different types of gas molecules, molar specific heats of an ideal gas.
4. To calculate the most probable velocity, arithmetic mean velocity, rms velocity of gas molecule from Maxwell's law.
5. To understand the concept of thermodynamics, its laws and its applications, blackbody radiation and system of particles
6. Every topic includes problem solving which develops thinking process and application skills of the students.
7. To gain practical knowledge by applying the experimental methods to correlate with the physics theory.
8. Apply the analytical techniques and graphical analysis to the experimental data.

Course Outcomes

1. The students shall be familiar with the basic concepts work, energy, motion, friction, thermodynamics and apply the procedures and techniques for the experiments.
2. To become familiar with blackbody radiation, kinetic theory of gases, degrees of freedom.
3. Students have grasped the laws of thermodynamics and its applications.
4. Solve problems related to thermodynamics, kinetic theory of gases etc.
5. Apply the mathematical concepts/equations to obtain quantitative results.
6. Develop basic communication skills through working in groups in performing the laboratory experiments and by interpreting the results.
7. Use the different measuring devices and meters to record the data with precision.

Subject : Mathematics – I

Module :

1. Algebra I - Matrices
2. Calculus - I
 - a) Differential Calculus
 - b) Integral Calculus
3. Geometry - Analytical Geometry of Three Dimensions

Course Objective :

- To Provide a thorough knowledge related to algebraic concepts such as matrices and theorems

- To Calculate successive differentiation relating to differential calculus and integral calculus.
- To Gain knowledge about three dimensions of analytical geometry.

Course Outcome :

- Students shall be familiar with basic concepts of form of matrix and solve problems.
- Develop problem solving skills relating to Jacobian problems and Leibnitz rule.
- Apply mathematical concepts to solve linear equations.

CS1T: PROGRAMMING CONCEPTS USING C

Course Objectives:

1. To gain experience about structured programming. To help students to understand the implementation of C language. To understand various features in C.
2. To make the students to understand practically about the control structures and function.
3. To give the knowledge about collection of elements , character such as arrays, strings.
4. To make the students to gain the knowledge about Structure and pointers.
5. To give the information about files and its operation. About the c pre-processor directives.

Course Outcomes:

At the end of this course, the students are able to:

1. Solve the given problem using the syntactical structures of C language.
2. Develop, execute and document computerized solution for various problems using the features of C language.
3. Ability to design the program using control structure and function.
4. To read and write C program that uses pointers, structures.
5. Gain the knowledge about files.

BSc II Sem

Subject: Mechanics – 2, Heat and Thermodynamics – 2

Paper II-Phy-T201:

Course Objectives

1. To provide a thorough knowledge and perform experiment on oscillations, moment of inertia.
2. To understand basic concepts like waves, phase transitions, elasticity.

- thermodynamic potentials and frames of reference.
3. To introduce students to the concept of special theory of relativity and its applications to Physical Sciences.
 4. To describe the concept of stress/strain and in its relation to force/displacement.
 5. Every topic includes problem solving which develops thinking process and application skills of the students.
 6. To determine axial force, shear forces and bending moments.
 7. Apply the analytical techniques and graphical analysis to the experimental data.

Course Outcomes

1. The students shall be familiar with the fundamental principles of the general theory of relativity.
2. They shall know the meaning of basic concepts like time dilation, inertial frames.
3. Establish the non-existence of the hypothesized stationary ether through the null result of Michelson-Morley experiments with interferometer.
4. Explain the true nature of Newtonian mechanics and Lorentz Transformation equations.
5. Understand the concept of constant relative motion of different bodies in different frames of references.
6. Usage of concepts and practical knowledge to design experiments.
7. Analyse and interpret data so as to reach to a valid conclusions.

Subject : Mathematics - II

Module :

1. Algebra II - Group Theory
2. Calculus - II
 - a) Differential Calculus
 - b) Integral Calculus
3. Differential Equations – I

Course Objective :

- To Develop the techniques to solve group theory.
- Describe the concepts of Cartesian and Curves.
- To apply integral calculus and other standard curves.
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Course Outcome :

- Students develop problem solving ability on binary operations and algebraic structure.
- Make use of planes and angles.
- Student gaining the ability to compute the length of arc, area, surface, volume, etc.

CS2T: DATA STRUCTURES

Course objectives:

1. To provide the knowledge of Data Structures using C.
2. To study the basic algorithms, time complexity, Space complexity and Divide and

conquer Methods

3. To understand the various application of Data Structures.
4. To understand algorithms, Array, Linked list, stack, Queues, Tree and Graphs.

Course outcomes:

At the end of this course, the students are able to:

1. Conclude the practical and ideal Data Structures.
2. Explain and design algorithms.
3. Explain the process of problem solving using C.
4. Design and implementation Array, Linked list, stack, Queues, Tree and Graphs in C program.

BSc III Sem

Subject: Electricity and Magnetism

Paper III-Phy-T301:

Course Objectives

1. This course deals with the study of electric field, magnetic field.
2. To provide the foundations of various networks and theorems used in electronics and also perform experiments on these theorems.
3. To understand the fundamentals of electromagnetism, thermoelectricity and basics of transient currents and alternating currents.
4. To know about concepts of scalar and vector fields and also about electromagnetic waves, Maxwell's equation.
5. To provide thorough knowledge and perform experiments using active and passive components and electronic devices.
6. The experiments related to electricity and magnetism.

Course Outcomes

1. To understand basic concept of current and current density vector.
2. To understand Kirchhoff's law by loop analysis.
3. To understand and illustrate network theorem including thevenin's theorem, maximum power transfer theorem and superposition theorem.
4. To understand the concept of electromagnetic induction, self induction of solenoid.
5. To understand the concept of magnetism and magnetic properties of materials such as ferromagnetic and anti ferromagnetic.
6. To illustrate the working of inductors in series and parallel.
7. Students shall learn about the significance of electric components and also it will teach the students about circuit connections.

Subject : Mathematics - III

Module :

- 1. Algebra III - Group**
- 2. Analysis - I**
 - a) Sequences of Real Numbers**
 - b) Series of Real Numbers**
- 3. Calculus III - Differential Calculus**

Course Objective :

- To apply techniques for solving differential calculus.
- To Gain knowledge about elements of groups and their properties.
- To understand the concepts of sequence and series of real numbers.

Course Outcome :

- Students able to demonstrate the theorems based on calculus and malcurin's expansion.
- Students will be able to perform basic operations on real numbers.
- Students develop problem solving capacity with respect to convergence.

CS3T: DATABASE MANAGEMENT SYSTEM AND SOFTWARE ENGINEERING

Course Objective:

- To understand the different issues involved in the design and implementation of a database system
- To study the physical and logical database designs, database modeling, relational, hierarchial and network models.
- To understand and use data manipulation language to query, update and manage a database.
- Graduates in their early careers will be agile software developers with a comprehensive set of skills appropriate to the needs of the dynamic global computing-based society.
- Graduates in their early careers will be capable of team and organizational leadership in computing project settings, and have a broad understanding of ethical application of computing-based solutions to societal and organizational problems.
- Graduates in their early careers will have the skills and knowledge to advance their career, including continually upgrading professional, communication, analytic, and technical skills.

Course Outcome:

- Define program-data independence, data models for database system, database schema and database instance.
- Recall Relational Algebra concepts, and use it to translate queries to Relational Algebra.
- **Technical Competence** –An ability to apply knowledge of math, science, and software engineering as well as collect, analyze and interpret data.
- **Design** –An ability to analyze, design and manage the development of a computing-

based system, component or process to meet desired needs within realistic constraints in one or more application domains.

- **Teamwork** –An ability to function on multidisciplinary teams .
- **Problem Solving** –An ability to identify, formulate, and solve software engineering problems using a well-defined engineering process .
- **Computing Professionalism** – An understanding of professional and ethical responsibility, a commitment to on-going professional competence and possession of basic professional and organizational success skills .
- **Communication** –An ability to communicate effectively
- **Perspective** –An understanding of the role and impact of software engineering in contemporary business, global, economic, environmental and societal context
- **Software Engineering Practices** –An ability to use knowledge, techniques, skills and modern tools necessary for software engineering practice.
- **Critical Thinking and Decision Making** –An ability to think critically, clearly identifying and using evidence, criteria, and values in decision making process

BSc IV Sem

Subject: Optics and Fourier Series

Paper IV-Phy-T401:

Course Objectives

1. This course gives an understanding of the basics of Physical optics, Interference, Diffraction and Polarisation.
2. To understand basic principles and applications of Holography and Fibre optics.
3. Each topic includes problem solving exercises.
4. It also aims at providing the fundamental theories of Fourier Series.
5. To perform experiments related to concepts like Diffraction, Interference.
6. The experiments related to waves and light included in this course provides an in depth understanding of the theory.

Course Outcomes

1. Thorough understanding of the wave nature of light
2. Analyse the intensity variation of light due to Polarization, Diffraction and Interference.
3. Expand a given function using Fourier Series expansion.
4. Understand different types of Fourier Integrals.
5. To understand concept of interference pattern due to reflected light in parallel sided thin films and in thin wedge shaped film.
6. To demonstrate experimental set up for Newton's rings, theory and its application to determine of wavelength of source and refractive index of liquids.
7. Understanding of theory and development of practical application skills.

Subject : Mathematics - IV

Module :

- 1. Algebra IV - Groups**
- 2. Analysis II - Fourier Series**
- 3. Calculus IV - Differential Calculus**
- 4. Mathematical Methods - I**
- 5. Differential Equations - II**

Course Objective :

- To understand the ideas of groups including normal sub-groups and quotient groups.
- To gain knowledge about Fourier series.
- To provide thorough understanding of maxima – minima functions.
- To apply various mathematical methods.

Course Outcome :

- Students becoming aware of concepts called Laplace transform of derivatives.
- Gaining familiarity with ordinary linear differential equations.
- Students make use of different mathematical methods and functions.

CS4T1: OPERATING SYSTEM AND UNIX

Course Objectives:

1. To learn the fundamentals of Operating Systems.
2. To learn the mechanisms of OS to handle processes and threads and their communication;
3. To learn the mechanisms involved in memory management in contemporary OS;
4. To gain knowledge on distributed operating system concepts that includes architecture,
Mutual exclusion algorithms, deadlock detection algorithms and agreement protocols;
5. To know the working of memory management, disk management and file management.
6. Discuss the information related to UNIX operating system and its commands.
7. To learn briefly about the Shell programming and Basic commands and structures are discussed here by practically.

Course Outcomes: At the end of this course, the students are able to:

1. Analyze the various device and resource management techniques for timesharing and distributed systems.
2. Understand the Mutual exclusion, Deadlock detection and agreement protocols of Distributed operating system.
3. To be familiar with the working of memory, disk and file.

4. To make the students familiar with architecture of UNIX and windows operating system along with internal representation of files.
5. Familiarize students about the shell script.

BSc V Sem

Subject: Statistical Physics, Quantum Mechanics-I, Atmospheric Physics and Nano materials Paper V-Phy-T501:

Course Objectives

1. This course in statistical mechanics provides the basic idea of probability to the students and also basic ideology of phase space, microstate, microstates.
2. The objective is to apply the principles of probability in distribution of particles in various systems and to calculate thermodynamic probability.
3. The course gives the insight of B.E, M.B and F.D statistics.
4. To study the basic principles of quantum mechanics and to study the role of uncertainty in quantum physics.
5. To know about failure of Classical Physics in phenomenon like Stability of atom, Compton effect, Photoelectric Effect and Explanation of the above effect on the basis of Quantum Mechanics.
6. Get knowledge of Historical perspective of Material Science and to classify between advanced materials, Nano structured materials.
7. To understand the Mechanical properties, Thermal properties, Electrical properties and Magnetic materials.
8. To gain practical knowledge by applying the experimental methods to correlate with the physics theory.
9. To study the temperature structure of Atmosphere, Beer's law, fixed and variable gases and formation of winds, cyclones.
10. Apply the analytical techniques and graphical analysis to the experimental data.

Course Outcomes

1. Students familiar with Nanostructure materials and its properties.
2. Students become familiar with concepts like probability, different types of statistics.
3. Explain the temperature structure of atmosphere.
4. Students familiar with specification of the state of the system (Classical and Quantum).
5. To obtain Lissajous figures and to measure different electrical parameters like frequency, a.c./d.c. voltage using CRO
6. Students familiar with Regulated power supply by studying as voltage regulator using Zener diode.
7. Students familiar with the principles of probability in distribution of particles in various systems.
8. To state Boltzmann relation and to perform statistical calculations of thermodynamic quantities.
9. To understand matter wave, concept of wave group and relation between phase velocity, group velocity, particle velocity.

Subject : Mathematics (Paper - V)

Module :

- 1. Algebra IV - Rings, Integral Domains, Fields**
- 2. Calculus V - Differential Calculus of Scalar and Vector Fields**
- 3. Numerical Methods - I**

Course Objective :

- To provide knowledge about rings, integral domains and fields.
- To make students familiar with vector fields and differential calculus of scalar.
- To gain information about different numerical methods and operations.

Course Outcome :

- Students gaining knowledge about rings, its types and properties.
- They develop skills to solve problems by interpolation.
- Applied Trapezoidal rule and Simpson's rule.
- To make use of vector identities and scalar fields.

CS5T1: VISUAL PROGRAMMING

Course Objectives:

1. To introduce the concepts of visual programming
2. To learn how to implement, test and debug visual basic applications
3. Explore IDE, syntax , variables and datatypes used in program development
4. To learn about decision structure, looping structure, procedure and function concept
5. To gain knowledge about MDI, SDI, Arrays, form controls , events and database
6. To enable the students to develop programs using visual basic
7. To introduce GUI programming using Microsoft Foundation classes
8. To enable the students to develop programs and simple applications using visual c++

Course Outcomes:

At the end of this course, the students are able to:

1. Ability to develop visual basic applications.
2. To be familiar with the tools and commands in visual basic
3. Gain the basic knowledge to develop projects.
4. Ability to implement visual c++ programs

**Subject: Astrophysics, Solid state physics and
Semiconductor physics
Paper VI -Phy-T503:**

Course Objectives

1. Describe the difference between crystalline and amorphous materials and the arrangement of atoms and ions in crystalline structures.
2. Explain the use of X-ray diffraction measurements in determining crystalline structures and to perform experiment to determine properties of crystals by powder method.
3. To know about the concept like Superconductivity, Free electron theory of metals.
4. To know about Zener diode characteristics and its use as a voltage regulator and LED characteristics and to perform experiments related to both diodes.
5. To study about transistor action and working and applications of solar cells, photo diode.
6. To provide a thorough knowledge about stars like luminosity, classifications.
7. To perform experiments based on the concepts like HR diagram, Sunspot photographs, Stellar spectra.
8. To provide thorough knowledge about evolution of stars – Black holes, White dwarfs, Supernova explosion and its types.

Course Outcomes

1. To apply techniques of X-ray diffraction to study crystals.
2. Have a basic knowledge of crystal systems and spatial symmetries.
3. To distinguish between P-N junction diode, Zener diode, LED and Photo diode and apply procedures for the experiments.
4. To distinguish between transistor circuit configurations (CE, CC, CB), current gains(α and β) and their interrelationship.
5. Students familiar with Stellar classifications, HR diagram and apply procedures for the experiments.
6. Analyse and interpret data so as to reach to a valid conclusions.
7. Students familiar with concepts like white dwarfs, black holes, supernova explosion.
8. Students familiar with gravitational potential energy, effective temperature, Colour, Core pressure, average temperature, core temperature of a star based on the linear density model of a star.

Subject : Mathematics (Paper - VI)

Module :

1. Mathematical Methods II - Calculus of Variation
2. Calculus - VI
 - a) Line and Multiple Integrals
 - b) Integrals Theorems

Course Objective :

- To describe mathematical methods of different types.
- To gain thorough knowledge of line and multiple integrals.
- To apply partial differential Integrals Theorems.

Course Outcome :

- Solving through Calculus of Variation.
- Students developing skill set to solve various Line and Multiple Integrals.
- Students developing skill set to solve various Integrals Theorems.

CS5T2: OBJECT ORIENTED PROGRAMMING USING JAVA**Course objectives:**

1. To study the basic principles objected Oriented Programming.
2. To understand the fundamentals of java programming
3. To understand the various application of Objected Oriented Programming.
4. To understand classes, objects Constructors, Inheritance, multithread, interface, packages, exception handling, applets and AWT.

Course outcomes:

At the end of this course, the students are able to:

1. Conclude the practical and ideal characteristics of objected oriented programming.
2. Explain and design classes, objects Constructors, Inheritance, polymorphism, multithread, interface, packages, exception handling, applets and AWT.
3. Compare the working of class and objects.
4. Explain the process of problem solving using Java.

BSc VI Sem**Subject: Atomic, Molecular and Nuclear Physics
Paper VII -Phy-T601:****Course Objectives**

1. Describe the atomic spectra of one and two valence electron atoms and explain the change in behaviour of atoms in external applied electric and magnetic field.
2. Explain rotational, vibrational, electronic and Raman spectra of molecules and perform experiments related these spectrum for different metals.
3. To provide thorough knowledge about Coupling schemes, Pauli's Exclusion principle and Zeeman effect.
4. This course deals with the phenomena taking place in the nuclear domain. Students will be given an insight into the dimensions of a Nucleus.
5. The students will learn about various types of radiations and their interaction with matter and also learn the methods to find the mass and charge of nucleus.
6. To study about construction, working and characteristics of detector like GM counter and perform experiment.
7. To provide thorough knowledge about Particle accelerators like Linear accelerators, Cyclotron and Betatron.

8. Apply the analytical techniques and graphical analysis to the experimental data.

Course Outcomes

1. Describe theories explaining the structure of atom and the origin of the observed spectra.
2. Identify atomic effect such as Zeeman effect and List different types of atomic spectra.
3. Explain the observed dependence of atomic spectral lines on externally applied electric and magnetic fields.
4. Students apply procedures and techniques to perform experiments related to Digital electronics like logic gates – AND, OR, NOT, NAND and XOR gates.
5. Students are able to determine the charge, mass of nucleus and are able to understand the size of nucleus and all its properties.
6. This course has led the students to understand interaction of various types of radiation with matter.
7. Students now know various methods of accelerating various types of particles to perform scattering experiments.
8. Students are able to understand the detecting methods and instruments for different types of charged and neutral particles.

Subject : Mathematics (Paper - VII)

Module :

1. Algebra V - Linear Algebra
2. Differential Equations - III
 - a) Orthogonal Curvilinear Co-ordinates
 - b) Partial Differential Equations

Course Objective :

- To describe linear algebra including basis and its dimensions.
- To gain thorough knowledge Orthogonal curvilinear coordinates.
- To apply partial differential equations and knowing its importance.

Course Outcome :

- Solving problem analysis and numbers.
- Students developing skill set to apply various methods called Newton – Raphson Method, Jacobi's Method, etc.
- They learnt to make use of solving and plotting of sphere using Orthogonal curvilinear coordinates.

CS6T1: WEB PROGRAMMING

Course objective:

1. To gain knowledge about client server architecture
2. Learn to design web pages using XHTML and CSS
3. To learn about java script concepts like fundamentals , syntax and methods
4. To learn about java script execution environment, DOM, navigator object,

- dynamic documents
5. To learn about moving elements, colouring, Dom2 event model
 6. To gain knowledge about XML, valid well formed documents, XSL

Course outcome:

At the end of this course, the students are able to:

1. Learn to design attractive / dynamic web pages for projects
2. Students will be able to write valid XML documents
3. Students will be able to write server side java application called JSP
4. Learn to connect jsp with DBMS

Subject: Electronics, Magnetic materials, Dielectrics and Quantum mechanics - II

Paper VIII -Phy-T603:

Course Objectives

1. To study Operational amplifiers – characteristics, limitations, frequency response, slew rate, CMRR.
2. To study concept of feedback of amplifier – its types, its advantages and perform experiments.
3. To provide thorough knowledge of linear applications of Op-amp like Summing amplifier, differentiator, integrator and also concepts like Filters, Oscillators and perform experiments
4. To provide thorough knowledge about Digital Electronics – Logic gates, its truth table and also about combination logic – Adders and Subtractors.
5. To study about Number Systems – Binary, Octal, Hexadecimal and also about Codes – BCD, Gray code(conversions)
6. To study basic principles and explain the operator formulation of Quantum Mechanics and also the concept of wave function.
7. To study Schrodinger equation and their applications and to study role of Uncertainty in Quantum mechanics.
8. To study basic concepts like Magnetic intensity, induction, permeability, Susceptibility and classification of Magnetic materials.
9. To study about Dielectrics.

Course Outcomes

1. Students familiar with Operational amplifier – its types and applications and apply procedures to perform experiments.
2. To familiar with Linear applications and Filter, Oscillators and apply procedures to perform experiments.
3. To develop a knowledge and understanding of the concept that quantum states live in a vector space.
4. To solve Quantum mechanics problems and Formulation of Schrodinger equation-time dependent and time independent forms.

5. To derive energy Eigen value and Eigen functions, Particle in a box and 1–D harmonic oscillator.
6. To formulate the Schrodinger wave equation in terms of spherical polar co-ordinates for its applications to solve hydrogen atom problem.
7. Understand the relation between Susceptibility, permeability, dielectric constant.
8. Students familiar with B-H curve, Hysteresis and energy loss, Curie's law, Piezo electric effect.
9. Students shall learn about the significance of electric components.

Subject : Mathematics (Paper - VIII)

Module :

1. Analysis III - Complex Analysis
2. Numerical Methods - II

Course Objective :

- To demonstrate basic skills to solve complex analysis.
- To gain thorough knowledge about various numerical methods.
- To apply innovative ideas in solving functions logically.

Course Outcome :

- Solving problem complex analysis.
- Students developing skill set to apply various numerical methods.
- They learnt to make use of solving Rungekutta Method, Picard's Method, Taylor's Series Method, etc.

CS6T2 : COMPUTER NETWORKS

Course Objectives:

1. Introduction to basic and fundamental of computer network
2. Discussion of various networking technologies, networking data, and transmission media such as wire and wireless networking.
3. Discussion of error detection and correction.
4. Getting the knowledge of topology and types of network[LAN, WAN, MAN].
5. To provide the information related to Layer-architecture, Routing.
6. General discussion about Internetworking: such as www, mail, DNS.

Course Outcomes:

1. To be familiar with history, evolution of network and internet.
2. To be familiar with contemporary issues in networking technologies,
3. To master the concepts of protocols, network interfaces, and design/performance issues in local area networks and wide area networks.
4. To master the terminology and concepts of the OSI reference model and the TCP-IP reference model.
5. To be familiar with network tools.

CS6P2: PROJECT LAB

Course Objectives:

1. Increase, develop and apply computer knowledge.
2. Gain project major skills.
3. Develop skill at conveying activities and achievements.
4. Work with others and on one's own to purpose a goal.
5. Decide and agree with peers that what work moves all towards a goal.
6. Sustain diverse acts with partners to complete a group projects.

Course Outcomes:

1. To know students individual measurements of activity and accomplishment.
2. Learned to use of computer tools, visual aids, careful choice of titles and outlines, effort put into documents.
3. Learn to communicate with others.
4. Student can grow professionally by doing the course.
5. Learned the project ideas and knowledge comes from preparation.
6. Plan, analyze, design and implement a software project using programming language like Java, Asp, Php etc.
7. Gain confidence at having conceptualized, design and implemented a working project with their team.

