

B.Sc., Physics (Students admitted from 2018-2019 onwards)

K.S. RANGASAMY COLLEGE OF ARTS AND SCIENCE
(Autonomous)

Tiruchengode - 637 215

Department of Physics



BACHELOR OF SCIENCE IN PHYSICS

PROGRAMME OUTCOMES (PO)

After completion of the programme, the graduates will be able to

PO 1 : State mathematical concepts needed for a proper understanding of physics.

PO 2 : Obtain the core knowledge in physics, including the interdisciplinary area of sciences.

PO 3 : Apply the knowledge to analyze a broad range of physical phenomena.

PO 4 : Think critically and work independently for understanding the logical connection between ideas.

PO 5 : Use research based knowledge for creating new ideas and methods in the field of modern physics.

PROGRAMME SPECIFIC OUTCOMES (PSO)

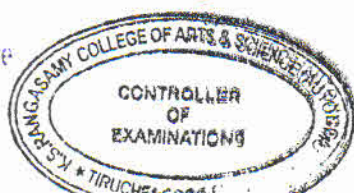
After completion of the programme, the graduates will be able to

PSO 1 : Obtain the basic concepts, fundamental principles and the scientific theories related to the nature of physical phenomena and their relevancies in day-to-day life.

PSO 2 : Comprehend the fundamental concepts in domain knowledge and its linkages with related areas.

PRINCIPAL

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Tiruchengode - 637 215. Tamil Nadu. INDIA.

PSO 3 : Familiarize the theories and models in various areas of physical science.

PSO 4 : Identify and apply appropriate physical principles and methodologies to solve wide range of problems associated with Physics.

PSO 5 : Formulate an interdisciplinary knowledge for performing experiments, interpreting data and gaining the information to pursue research as a career.

SEMESTER - I: COURSE OUTCOMES (CO)


After completion of the course, the students will be able to

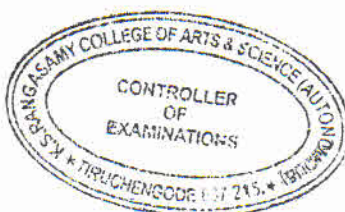
18UPHM101	CORE I: PROPERTIES OF MATTER AND SOUND
CO 1	Obtain the knowledge of properties of matter to explain natural physical processes and related technological advances.
CO 2	Use elementary mathematics along with physical principles to effectively study in viscosity of liquid and gases.
CO 3	Demonstrate the basic principle relevant to the experimental methods for surface tensions of liquids.
CO 4	Obtain knowledge of sound propagation, sound perception, acoustic regulation and sound absorbents.
CO 5	Comprehend the physical properties of the ultrasound and its applications in various fields.


MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	H	H	M	M	L	H	H	M	M	L
CO 2	M	M	M	M	L	H	H	M	M	L
CO 3	L	L	H	H	M	L	L	H	H	M
CO 4	M	H	M	L	H	H	H	M	L	H
CO 5	H	L	H	M	L	H	M	H	M	L

H-High; M-Medium; L-Low


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18UPHM102	CORE II: THERMAL PHYSICS
CO 1	Understand the workings principles of various types of thermometers and the nature of Calorimetry by specific heat of state of mater.
CO 2	Gain knowledge on various ways matter can change phase: Condensation/evaporation, melting/freezing and sublimation for suitable theory.
CO 3	Analyze theoretical and experimental concepts of thermal conductivity for solid and gas medium.
CO 4	Apply the state thermodynamics law and its implication.
CO 5	Formulate the nature of thermodynamic properties like internal energy, Enthalpy and specific heat relations.

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	M	H	M	M	L	H	H	H	M	L
CO 2	H	H	M	M	L	H	H	M	M	L
CO 3	M	L	H	H	M	M	L	H	H	M
CO 4	M	H	M	L	H	H	H	M	L	H
CO 5	H	M	H	M	L	H	M	H	M	L

H-High; M-Medium; L-Low

18UMAPHA101	ALLIED I: ALGEBRA AND DIFFERENTIAL CALCULUS
CO 1	Calculate Eigen values and Rank of a matrix.
CO 2	Solve algebraic equations.
CO 3	Understand the variations in variables.
CO 4	Understand the difference between partial and total differentiation.
CO 5	Find the curvature and radius of curvature of a curve.

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	M	M	L	M	H	H	M	H	M	H
CO 2	H	H	M	M	L	H	H	M	M	L
CO 3	L	L	H	H	M	L	L	H	H	M
CO 4	M	H	M	L	H	H	H	M	L	H
CO 5	H	M	H	M	L	H	M	H	M	L

H-High; M-Medium; L-Low

18UPHMP101	CORE PRACTICAL I: PRACTICAL PHYSICS - I
CO 1	Analyze the various physical properties of the various materials.
CO 2	Determine the thermal property and viscosity of the materials.
CO 3	Obtain basic concept of resonance effect and frequency of the vibrating bodies.

SEMESTER - II: COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

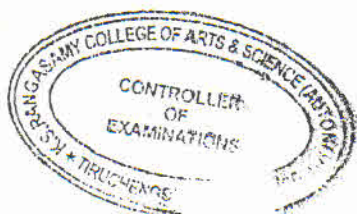
18UPHM201	CORE III: MECHANICS
CO 1	Understand the motion of projectile in various range and collision between them with suitable law.
CO 2	Study the basic concepts of simple harmonic motion of the rigid bodies through the various methods.
CO 3	Comprehend the center of gravity for different shaped materials and its frictional forces.
CO 4	Obtain the knowledge about the hydrostatics and hydrodynamics.
CO 5	Understand the concepts of motion of macroscopic particles with suitable laws.

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	H	L	M	H	M	H	H	M	M	M
CO 2	M	H	M	M	L	H	H	M	M	L
CO 3	H	M	H	H	M	M	M	H	H	M
CO 4	M	H	M	L	H	M	H	M	L	H
CO 5	M	M	H	M	L	L	M	H	M	L

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18UPHMP201	CORE PRACTICAL II: PRACTICAL PHYSICS - II
CO 1	Know the concept of parameters, such as stress, strain and elastic limit needed to achieve a given amount of deformation in the given material through uniform and non-uniform bending by Koenig's method.
CO 2	Comprehend the law of light through a spectrometer and Newton's rings method
CO 3	Apply and verify the concepts of conservation law of energy and momentum.

SEMESTER - III: COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

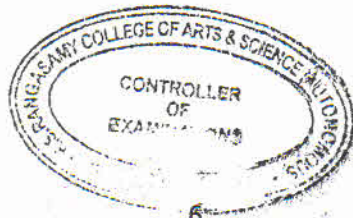
18UPHM301	CORE V: ATOMIC PHYSICS
CO 1	Describe the properties of positive rays and analyses its basic characteristics through the atomic spectroscopic techniques.
CO 2	Explain the effect of motion of nucleus done with Rutherford's, Bohr and Sommerfeld atom models.
CO 3	Realize the physical significance of motion of electrons.
CO 4	Demonstrate the photoelectricity through the quantum hypothesis.
CO 5	Formulate the selection rules for the interaction of electric dipole radiation and fine structure of atoms.

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	H	H	M	M	L	H	H	M	M	L
CO 2	M	H	H	M	L	H	H	M	M	L
CO 3	L	L	H	H	M	L	L	H	H	M
CO 4	H	H	M	L	L	H	H	M	L	H
CO 5	H	M	H	M	L	H	M	H	M	L

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18UPHM202	CORE IV: OPTICS
CO 1	Study about the aberrations takes place in different types of lenses.
CO 2	Comprehend the phenomenon of light can constructively and destructively in interference.
CO 3	Know about the basic concepts of diffractions of lights with experimental evidence.
CO 4	Obtain the characteristics of light waves in polarization phenomena.
CO 5	Know about the photoelasticity and its applications.

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	M	H	M	M	M	H	H	M	M	M
CO 2	H	H	M	M	L	H	H	M	M	L
CO 3	H	L	H	H	M	M	L	H	H	M
CO 4	M	M	M	L	H	H	H	M	L	H
CO 5	H	M	H	M	L	H	M	H	M	L

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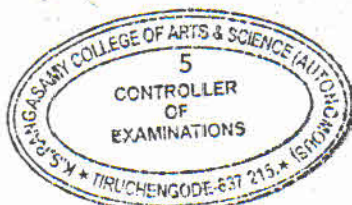
18UMAPHA201	ALLIED II: INTEGRAL CALCULUS AND VECTOR CALCULUS
CO 1	Integrate trigonometric functions and integrations involving more than one factor.
CO 2	Expand a given function in terms of Fourier series.
CO 3	Identify conservative field and solenoidal vector.
CO 4	Find workdone by the force, area and volume of different regions.
CO 5	Discuss the relations between line integral, surface integral and volume integral.

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	H	H	L	M	M	H	H	M	M	M
CO 2	L	H	M	M	L	H	H	M	M	L
CO 3	M	L	H	H	M	M	L	H	H	M
CO 4	H	H	M	L	H	H	H	M	L	H
CO 5	H	M	L	M	L	H	M	H	M	L

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18UCSPHA301	ALLIED III: PROGRAMMING IN C
CO 1	Know the basic terminology of C Programming
CO 2	Develop programs using control structures
CO 3	Understand the Arrays and String handling functions
CO 4	Understand the various categories of functions and structures with its usage
CO 5	Develop the program using file concepts

MAPPING

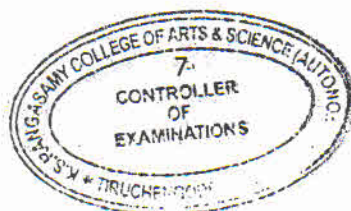
PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	M	M	M	H	H	M	M	M	H	H
CO 2	M	M	M	M	L	M	M	M	H	H
CO 3	M	L	M	H	M	M	M	M	H	H
CO 4	L	M	L	L	H	M	M	M	H	H
CO 5	L	M	M	H	H	M	M	M	H	H

H-High; M-Medium; L-Low

18UPHMP301	CORE PRACTICAL III: PRACTICAL PHYSICS - III
CO 1	Determine the various physical parameters such as temperature coefficient, dislocation of energy in molecules, specific charge of the electron, Earth magnetic field and magnetic induction etc.,
CO 2	Examine the Hartmann's theory and measure the wavelength of spectral lines from natural light source.
CO 3	Apply the knowledge of semiconductor thin films in conversion of energies.

18UCSPHAP301	ALLIED PRACTICAL I: PROGRAMMING IN C
CO 1	Develop simple programs.
CO 2	Implement various control structures.
CO 3	Develop program using Arrays.
CO 4	Implement Function, Structure and Union concepts.
CO 5	Develop program using files.

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18UPHSB301	SBC I: INSTRUMENTATION
CO 1	Obtain the basic knowledge of instrumentations and its troubleshooting problems.
CO 2	Describe the physical quantities of measurements.
CO 3	Identify the various types of basic functions of input; output based analog, digital and optical recording display devices.
CO 4	Explain about magnetic based moving coil instruments and light display diode devices.
CO 5	Operate modern electrical and electronic instruments and find faults and test various instrument.

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	M	H	M	M	H	H	H	M	M	L
CO 2	H	H	M	M	L	H	H	M	M	L
CO 3	L	L	H	H	M	L	L	H	H	M
CO 4	L	H	M	L	H	H	H	M	L	H
CO 5	H	M	H	M	L	H	M	H	M	L

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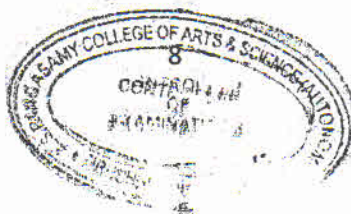
18UPHNM301	NMEC I: LASER AND ITS APPLICATIONS
CO 1	Explain the basic principle of laser emission.
CO 2	Comprehend and explain the principles and design considerations of various (solid state and gas) lasers, modes of their operation.
CO 3	Describe the applications of laser in industries.
CO 4	Obtain the knowledge on applications of laser in medical field.
CO 5	Know the significance of modern lasers in communication networking system.

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	H	H	M	M	L	H	H	M	M	L
CO 2	H	H	L	M	L	H	H	M	M	L
CO 3	M	L	H	H	M	H	L	H	H	M
CO 4	H	H	M	L	H	H	H	M	L	H
CO 5	H	M	M	M	H	H	M	H	M	H

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18UPHAC301	AC I: FUNDAMENTALS OF ASTROPHYSICS
CO 1	Explain fundamental concepts in astrophysics.
CO 2	Know about the main features and formation theories of the various types of observed galaxies, in particular the milkyway.
CO 3	Describe basic cosmological models to predict the age and structure of the universe for various geometries.
CO 4	Explain about interstellar matter in the milkyway and its typical density.
CO 5	Acquire knowledge on features of objects in the solar system.

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PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	H	H	M	M	L	H	H	M	M	L
CO 2	H	H	M	M	M	H	H	M	M	M
CO 3	L	L	H	H	M	L	L	H	H	M
CO 4	H	H	M	L	H	H	H	M	L	H
CO 5	H	M	H	M	L	H	M	H	M	L

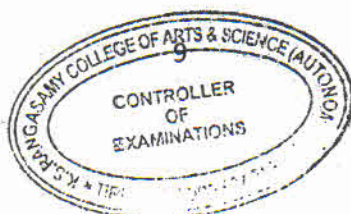
H-High; M-Medium; L-Low


SEMESTER - IV: COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

18UPHM401	CORE VI: BASIC ELECTRONICS
CO1	Comprehend the operating principles of special semiconductor devices and optoelectronic devices.
CO2	Describe the basic principle and characterization of transistors of for current and voltage amplification process.
CO3	Know the concept of feedback amplification process and various oscillator circuits.
CO4	Demonstrate the switching and amplification application of the semiconductor devices.
CO5	Describe the ideal and practical operational amplifier their electrical parameters, need for op-amp. Explain different application circuits using op- amp.


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CO 1	H	L	M	M	M	H	H	M	M	M
CO 2	M	H	M	M	L	H	H	M	M	L
CO 3	M	M	H	H	M	M	M	H	H	M
CO 4	H	H	M	L	H	H	H	M	L	H
CO 5	H	M	H	M	L	H	M	H	M	L

H-High; M-Medium; L-Low

18UCHPHA401	ALLIED IV: CHEMISTRY
CO 1	Acquire knowledge about the theories and types of chemical bonding.
CO 2	Evaluate the basic principles of reaction mechanism in organic compounds.
CO 3	Recall inorganic concepts of ligands and the theory behind the applications.
CO 4	Revise the basic concepts of quantum chemistry and utilize the principles of quantum chemistry.
CO 5	Formulate the laboratory techniques and prepare solutions for practicals.

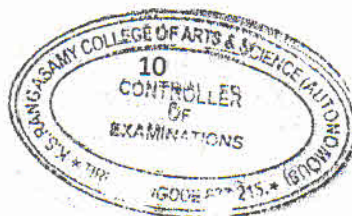
MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	H	M	M	H	L	H	M	M	H	L
CO 2	M	H	L	M	M	L	H	M	M	M
CO 3	M	L	H	H	L	M	L	H	H	L
CO 4	L	L	L	L	L	L	L	L	L	L
CO 5	M	H	H	H	H	M	H	H	H	H

H-High; M-Medium; L-Low

18UPHMP401	CORE PRACTICAL IV: PRACTICAL PHYSICS - IV
CO 1	Analyze the basic characterization of semiconductor devices.
CO 2	Examine the arithmetic and logical operations through the digital circuits.
CO 3	Determine the specific resistance, electro motive force, voltage and current sensitiveness of the circuits.

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18UCHPHAP401	ALLIED PRACTICAL II: CHEMISTRY (For B.Sc., Physics)
CO 1	Analyse quantitatively by titration techniques.

18UPHSB401	SBC II: LASER PHYSICS
CO 1	Explain the basic principle of laser emission.
CO 2	Comprehend and explain the principles and design considerations of various (solid state and gas) lasers, modes of their operation.
CO 3	Describe the applications of laser in industries.
CO 4	Obtain the knowledge on applications of laser in medical field.
CO 5	Know the significance of modern lasers in communication networking system.

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	H	H	M	M	L	H	H	M	M	L
CO 2	M	H	M	M	L	H	H	M	M	L
CO 3	L	L	H	M	M	H	L	H	H	M
CO 4	H	H	M	L	H	H	H	M	L	H
CO 5	H	M	H	M	H	H	M	H	M	H


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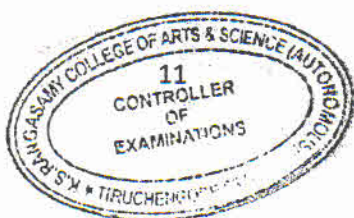
18UPHNM401	NMEC II: APPLIED PHYSICS
CO 1	Know the acoustic properties of sound.
CO 2	Acquire the knowledge on ultrasonic waves and its applications.
CO 3	Know about working and applications of lasers.
CO 4	Comprehend the application of laser in optical fibre communication.
CO 5	Apply the electromagnetic induction and its applications.


MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	H	H	M	M	M	H	H	M	M	M
CO 2	H	H	M	M	L	H	H	M	M	L
CO 3	M	M	H	H	M	M	M	H	H	M
CO 4	H	H	M	L	H	H	H	M	L	H
CO 5	H	M	H	M	H	H	M	H	M	H

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18UPHAC401	AC II: ASTRONOMICAL TECHNIQUES
CO 1	Know about the stellar evolution, including red giants, supernovas, neutron stars, white dwarfs and black holes, using evidence and presently accepted theories.
CO 2	Know fundamental theories that explain star properties, distance and magnitudes and evolution of the universe and planetary systems.
CO 3	Demonstrate the detection of stars and planets through modern astrophysical observation.
CO 4	Explain astronomical features and observations obtained via telescopic observations and data prediction.
CO 5	Predict the phases of neighboring planets based on their relative positions and the location using high resolution telescopic techniques.

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	H	M	M	M	H	H	H	M	M	M
CO 2	M	H	M	M	M	H	H	M	M	M
CO 3	M	L	H	H	M	M	L	H	H	M
CO 4	H	H	M	M	H	H	H	M	M	H
CO 5	H	M	H	M	L	H	M	H	M	L

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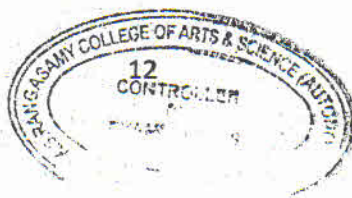
18UPHAL401	ADVANCE LEARNERS COURSE I: PLASMA PHYSICS
CO 1	Know the basic concepts of plasma physics.
CO 2	Realizes the physics behind plasma and various forms of plasma
CO 3	Acquires knowledge of the various plasma diagnostics technique.
CO 4	Comprehends the physics of modeling plasmas as fluid and plasma fusion.
CO 5	Acquires knowledge of the wave propagation in plasmas

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	M	H	M	M	L	H	H	M	M	L
CO 2	H	H	M	M	L	H	H	M	M	L
CO 3	M	L	H	H	M	M	L	H	H	M
CO 4	M	H	M	L	H	M	H	M	L	H
CO 5	H	M	H	H	H	L	M	H	H	H

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Tiruchengode - 637 215, Tamil Nadu, India

SEMESTER - V: COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

18UPHM501	CORE VII: ELECTRICITY AND ELECTROMAGNETISM
CO 1	Obtain the fundamental properties of the electric charge and the electric potential within a framework of distributed symmetric charge distributions.
CO 2	Understand electrostatic charges and its application.
CO 3	Measuring the growth and decay of charges in various combination inductance, resistance and capacitor.
CO 4	Knowing the peak, average value of RMS in AC containing LCR circuits and its energy losses.
CO 5	Obtain the knowledge of electromagnetism.

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	H	H	M	L	H	H	H	M	L	L
CO 2	M	M	M	M	L	H	M	M	M	L
CO 3	M	M	M	H	M	M	M	M	H	M
CO 4	H	H	M	L	H	H	H	M	L	H
CO 5	M	M	L	H	L	M	M	L	L	L

H-High; M-Medium; L-Low

18UPHM502	CORE VIII: SOLID STATE PHYSICS
CO 1	Comprehend crystal symmetry and understand the structural properties of crystals.
CO 2	Understand the basic characteristic method to analyzing the crystals structure and defects.
CO 3	Obtain the knowledge of various magnetic material based on the properties and its relevant theories.
CO 4	Understanding the concept of free electron theory and Hall effects for solid state materials.
CO 5	Knowing different types of polarization in dielectric and analyze dielectric material based on frequency, temperature and breakdown voltage

PRINCIPAL

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MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	M	H	M	M	M	H	H	M	M	M
CO 2	H	H	H	M	L	H	H	L	M	L
CO 3	M	H	H	H	M	M	H	H	H	M
CO 4	H	H	M	L	H	H	H	M	L	H
CO 5	M	M	M	M	H	M	M	M	M	H

H-High; M-Medium; L-Low

18UPHM503	CORE IX: MATHEMATICAL PHYSICS
CO 1	Understand the basic concepts of scalar and vector fields and also interrelation between the integrations with simple problems.
CO 2	Comprehend the knowledge of matrices and its characteristics, orthogonally conditions & transformations.
CO 3	Define and manipulate the Dirac Delta and other distributions and be able to derive their various properties.
CO 4	Understand the use of Laplace transformations to solve differential equations and its applications.
CO 5	Demonstrate the complex analysis through the physical concept.

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	H	M	H	M	L	H	M	M	M	L
CO 2	H	L	M	M	M	H	H	M	M	L
CO 3	M	M	H	H	M	M	M	H	H	M
CO 4	H	H	M	L	H	H	H	M	L	H
CO 5	L	M	H	M	H	L	M	H	M	H

H-High; M-Medium; L-Low

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18UPHM504	CORE X: ELECTRONICS AND COMMUNICATION
CO 1	Understand the fundamentals of communication system, modulation and demodulation.
CO 2	Understand the principle of frequency modulation and phase modulation.
CO 3	Study the functioning of radio receivers.
CO 4	Understand the fundamentals of the antenna, satellite and microwave techniques.
CO 5	Learn about the advanced communication technology such as DTH, 5G and FSO concepts.

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	M	H	M	M	M	H	H	M	M	M
CO 2	H	H	M	L	L	H	H	M	L	L
CO 3	M	M	M	H	M	M	M	M	H	M
CO 4	H	M	M	L	H	H	M	M	L	H
CO 5	H	M	H	M	L	H	M	H	M	L

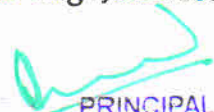
H-High; M-Medium; L-Low

18UPHEL501	ELECTIVE I: ENERGY PHYSICS
CO 1	Recognize the sources of energy and energy conservation technology.
CO 2	Understand the basic principle of energy conversion from solar into other form.
CO 3	Recognize the wind energy and principle of wind energy conversion to electrical energy.
CO 4	Understand the natural fuel like biomass energies.
CO 5	Knowing the energy storage devices.


MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	M	H	M	M	M	H	H	M	M	M
CO 2	H	H	M	M	L	H	H	M	M	L
CO 3	M	M	L	H	M	M	M	H	H	M
CO 4	H	H	M	L	H	H	H	M	L	H
CO 5	M	M	M	M	L	L	M	M	M	L

H-High; M-Medium; L-Low


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18UPHEL502	ELECTIVE I: GEOPHYSICS
CO 1	Understand the quantitative aspects of Seismology.
CO 2	Ability to interpret surface waves on the Earth.
CO 3	Determine earthquake gravity parameters.
CO 4	Understand the geomagnetic field and the principle.
CO 5	Understand the Geochronology and Geothermal Physics

MAPPING

PO, PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	M	M	H	M	L	H	M	M	M	L
CO 2	H	H	M	M	L	H	H	M	M	L
CO 3	M	M	H	H	M	M	M	H	H	M
CO 4	H	M	M	L	H	H	H	M	L	H
CO 5	M	M	L	M	L	M	M	L	L	L

H-High; M-Medium; L-Low

18UPHMP501	CORE PRACTICAL V: PRACTICAL PHYSICS - V
CO 1	Analyze the various physical measurements of the various materials.
CO 2	Determine the charge and voltages for electrical circuits.
CO 3	Obtain basic concept of charge, potential and voltages etc.

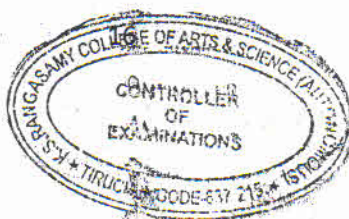
18UPHSB501	SBC III: SPECTROPHYSICS
CO 1	Understand the electromagnetic spectrum.
CO 2	Comprehend the microwave spectrum and its applications.
CO 3	Knowing the infrared spectroscopy and its applications.
CO 4	Knowing the Raman Effect and its applications.
CO 5	Understand the elementary ideas about NMR & ESR spectroscopy and its applications.

MAPPING

PO, PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	M	M	M	L	L	H	M	M	L	L
CO 2	H	M	M	M	L	H	M	M	M	L
CO 3	M	M	H	H	M	M	M	H	H	M
CO 4	L	H	M	L	M	H	H	M	L	M
CO 5	M	M	M	M	L	M	M	M	L	L

H-High; M-Medium; L-Low

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18UPHM602	CORE XII: NUCLEAR PHYSICS
CO 1	Identify the basic nuclear properties and outline their theoretical descriptions.
CO 2	Understand the natural of radioactivity.
CO 3	Understand the experimental evidence of decay the reaction to obtain the Q values for the different types of nuclear reactions.
CO 4	Learn the types of nuclear reactions and conservation laws, energetics of nuclear reactions for various type of cycling.
CO 5	Knowing the detection methods of nuclear reaction radiations.

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	M	H	M	H	L	H	H	M	H	L
CO 2	H	H	M	M	L	H	H	M	M	L
CO 3	H	M	M	H	M	M	M	H	H	M
CO 4	H	H	M	L	H	H	H	M	L	H
CO 5	H	M	L	M	L	H	M	L	M	L

H-High; M-Medium; L-Low

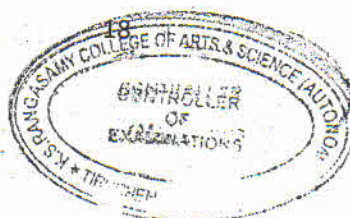
18UPHM603	CORE XIII: DIGITAL ELECTRONICS AND MICROPROCESSOR
CO 1	Understand the concepts of number systems, logic gates and Boolean functions.
CO 2	Study about the simplification of logic circuits and combinational circuits.
CO 3	Understand the basic concept of sequential circuits.
CO 4	Learn about the architecture, registers and functions of 8085 microprocessor.
CO 5	Study about the instruction set and addressing mode of 8085 microprocessor with program examples.

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	H	H	M	M	M	H	H	M	M	L
CO 2	M	H	HM	M	L	H	H	M	M	L
CO 3	M	M	H	H	M	M	M	H	H	M
CO 4	H	H	M	L	H	H	H	M	L	H
CO 5	H	M	H	M	L	H	M	H	M	L

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18UPHAL501	ADVANCE LEARNERS COURSE II: SPINTRONICS
CO 1	Know the basic concepts of spintronics in historical view point.
CO 2	Understand the spin dependent transport of electron nature.
CO 3	Acquires knowledge of spin transfer magnetic dynamics.
CO 4	Comprehends the fundamental phenomena of spin injection and its applications.
CO 5	Acquires knowledge of advanced spintronics materials.

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	H	H	M	L	M	H	H	M	M	L
CO 2	M	H	M	M	L	H	H	M	M	L
CO 3	M	L	H	H	M	M	L	H	H	M
CO 4	M	H	M	L	M	M	H	M	L	M
CO 5	H	M	H	H	M	L	M	H	H	M

H-High; M-Medium; L-Low

SEMESTER - VI: COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

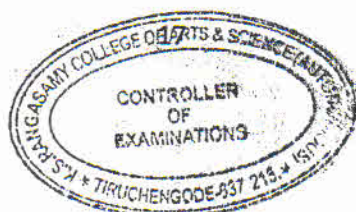
18UPHM601	CORE XI: QUANTUM MECHANICS AND RELATIVITY
CO 1	Understand the basic principles of quantum mechanics.
CO 2	Understand the operator formulation and Schrodinger's equations of motion of particle and wave mechanics.
CO 3	Obtain the solution of various physical problems through Schrodinger's equation of motion of material particle.
CO 4	Understand the basic theory of relativity.
CO 5	Learning the special theory of relativity and obtain the relation between the mass-energy and four dimensional vector space etc.,

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	M	H	M	M	L	H	H	M	M	L
CO 2	H	H	L	H	L	H	H	M	M	L
CO 3	M	M	H	M	M	M	M	H	M	M
CO 4	H	H	M	L	H	H	H	M	L	H
CO 5	L	M	L	M	L	L	M	L	M	L

H-High; M-Medium; L-Low

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18UPHEL601	ELECTIVE II: PHYSICS OF NANOSCALE
CO 1	Obtain the knowledge of Nanoscience in physics point of view.
CO 2	Understand the different potentials application of nanomaterials.
CO 3	Analyze the study and application of nanomolecular electronics.
CO 4	Knowing the application of nanotechnology in energy and fuel cell.
CO 5	Recognize the nanotechnologies in nanomedicine applications.

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	H	H	M	M	M	H	H	M	M	L
CO 2	M	H	M	M	L	H	H	M	M	L
CO 3	M	M	H	H	M	M	M	H	H	M
CO 4	H	H	M	L	H	H	H	M	L	H
CO 5	M	M	H	M	H	H	M	H	M	H

H-High; M-Medium; L-Low

18UPHEL602	ELECTIVE II: BIOMEDICAL INSTRUMENTATION
CO 1	Obtain the knowledge of human body and its anatomy and physiology.
CO 2	Understand the different potentials and equivalent circuits for medical treatment.
CO 3	Analyze the study of diagnostic and therapeutic applications like computed tomography, ultrasound imaging and MRI.
CO 4	Knowing the characteristics of recorders like ECG, EEG, EMG and ERG.
CO 5	Apply the modern technologies and modern trends used in the biomedical instrumentation.

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	M	H	M	M	L	H	H	M	L	L
CO 2	H	M	H	M	L	H	H	M	M	L
CO 3	M	M	H	H	M	M	M	H	H	M
CO 4	H	H	M	L	H	H	H	M	L	H
CO 5	H	M	H	M	H	H	M	H	M	H

H-High; M-Medium; L-Low

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18UPHMP601	CORE PRACTICAL VI: PRACTICAL PHYSICS - VI
CO 1	Verify the operations of logic gates and DeMorgan's theorem through ICs.
CO 2	Construct combinational and sequential logic circuits.
CO 3	Knowledge the programs for various operations using 8085 microprocessor.

18UPHSB601	SBC IV: MATERIALS AND PROCESSING
CO 1	Analyze the materials properties in physics point of view.
CO 2	Knowledgeable of types of materials.
CO 3	Understand the importance methods of materials testing, heat treatment and surface analyzing.
CO 4	Obtain the heat treatment process to modify the microstructure and properties of materials.
CO 5	Knowing the various surface treatment processes to improve the surface characteristics of the materials.

MAPPING

PO,PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	H	M	H	M	L	H	M	M	M	L
CO 2	H	H	M	M	L	H	H	M	M	L
CO 3	M	H	M	H	M	M	M	H	H	M
CO 4	H	H	M	L	M	H	H	M	L	M
CO 5	M	M	M	M	L	M	M	M	M	L

H-High; M-Medium; L-Low



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Principal



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