Course Outcome

Semester-I

Core Course: I

PH1CRT01: METHODOLOGY AND PERSPECTIVES OF PHYSICS

On successful completion of the course, the students will be able to

CO1 – **Construct** the insight ofthe Development of physics in the last century and **list out** the contributions of great scientists.

CO2 - **Compare and contrast** theContributions of Indian physicists.

CO3 - **Identify** basic concepts, theories and principlesand its applications of physics in everyday life.

CO4 - ***Use*** the operations with basic number systems and **identify** its applications in digital electronics.

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	2	2	3
CO 3	3	3	3	2	1	3
CO 4	3	3	3	1	1	3
Total	12	12	12	7	6	12
Average	3	3	3	1.75	1.5	3

Semester-II
Core Course: II

PH2CRT02: MECHANICS AND PROPERTIES OF MATTER

On successful completion of the course, the students will be able to

CO1 – **Describe** the concept of wave motion and able to **construct** different models describing wave motion.

CO2 - A**nalyse** different phenomena associated with wave motion.

CO3 - **Explain** oscillatory motion and **design** and **classify** different oscillators.

CO4 - E***xplain*** *different terms associated with rotational mechanics and* ***obtain solutions*** *to physical problems of rotational mechanics*d error analysis

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	2	3	3	2	2	3
CO 2	3	3	3	2	2	3
CO 3	3	2	3	2	3	3
CO 4	3	3	3	3	3	3
Total	11	11	12	9	10	12
Average	2.75	2.75	3	2.25	1.5	3

Core Course: III

PH3CRT03: OPTICS, LASER AND FIBER OPTICS

On successful completion of the course, the students will be able to

CO1 – **Discuss** the interference phenomenon and **explain** the significance of it by **illustrating** examples.

CO2 - **Resolving** numerical examples of interference in different context.

CO3 - **List out** different types of diffraction and **categorise** various physical problems of diffraction.

CO4 - **Explain** the concept of polarization and **describe** various theorems of it.

CP-PSO Matrix

Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	1	3	3
CO 3	3	2	3	2	3	3
CO 4	3	3	3	3	3	3
Total	12	11	12	8	11	12
Average	3	2.75	3	2.25	2.75	3

Semester-IV
Core Course: IV

PH4CRT04: SEMICONDUCTOR PHYSICS

On successful completion of the course, the students will be able to

CO1 – **Describe** the properties of materials and **application** of semiconductor electronics

CO2 – **Apply** the knowledge of semiconductors to **illustrate** the functioning of basic electronic devices.

CO3 – **Demonstrate** the switching and amplification application of the semiconductor devices.

CO4 – **Demonstrate** the control applications using semiconductor devices.

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	2	3	3	3	3	
CO 3	3	2	2	2	3	3
CO 4	3	2	3	3	3	3
Total	11	10	11	10	11	9
Average	2.75	2.5	2.75	2.5	2.75	2.25

SEMESTERV

Core Course: V

PH5CRT05: ELECTRICITY AND ELECTRODYNAMICS

CO1-Discuss the theory of moving coil ballistic galvanometer.

CO2-Discuss variation of alternating current with time and define basic parameters and Determine mean value and rms values of ac.

CO3-Analyse LCR series circuits and LCR parallel resonant circuit

CO4 - Illustrate Superposition, Reciprocity, Thevenin's, Norton's & Maximum power transfer theorems.

CP-PSO Matrix

Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	3	3	2
CO 3	3	3	3	3	3	3
CO 4	3	2	3	3	1	1
Total	12	11	12	11	9	9
Average	3	2.75	3	2.75	2.25	2.25

Core Course: VI

PH5CRT06: CLASSICAL AND QUANTUM MECHANICS

CO1 - Describeprinciple of virtual work and D'Alembert's principle

CO2 - solve Linear Harmonic oscillator, Planetary motion and Simple Pendulum problems using Lagrange's equation of motion

CO3 - Illustrate Calculus of variations to find out Euler Lagrange's equations for shortest

distance between two points,Brachistochrone problem

CO4 - Identify the limitations of classical mechanics and find the need of quantum mechanics

CP-PSO Matrix

Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3		3	3	3
CO 3	3	1	2	3	1	3
CO 4	3	2	3	3	3	3
Total	12	9	8	11	9	12
Average	3	2.25	2	2.75	2.25	3

Core Course: VII

PH5CRT07: DIGITAL ELECTRONICS AND PROGRAMMING

CO1 - Compare Digital and analog systems.

CO2 - Compare operators, logic symbols and truth tables of different logic gates.

CO3 –Summarizing combinational and sequential logic systems

CO4 - Use Sum of product method, product of sum method for reducing Boolean expressions.

CP-PSO Matrix

Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	3	2	3
CO 2	2	3	3	3	3	3
CO 3	3	3	1	3	1	3
CO 4	2	3	3	3	3	3
Total	11	12	10	12	9	12
Average	2.75	3	2.5	3	2.25	3

Core Course: VIII

PH5CRT08: ENVIRONMENTAL PHYSICS AND HUMAN RIGHTS

CO1 - Explainthe Causes, effects and control measures of environmental pollution

CO2 - Discuss environmental ethics and various environment protection acts such as air act.water act, wildlife protection act and forest conservation act

CO3 - Categorize renewable and non-renewable energy sources

CO4 - Classify solar heat energy convertors such as solar cooker, solar still, solar dryer , solar pond

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	3	3	3
CO 2	3	3	3	1	3	3
CO 3	3	3	3	2	3	3
CO 4	3	2	3	3	1	3
Total	12	11	12	9	10	12
Average	3	2.75	3	2.25	2.5	3

Semester-VI

Core Course: IX

PH6CRT09: THERMAL AND STATISTICAL PHYSICS

CO1 - Apply first law to isochoric process, isobaric process, adiabatic process.

CO2 - Describe the parts of heat engines.

CO3 - Apply Second law to explain the working of Carnot Refrigerator

CO4 - Understand the concept of entropy and change in entropy.

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	3	2	3
CO 2	3	3	3	3	3	2
CO 3	3	3		2	1	3
CO 4	3	2	3	3	3	1
Total	12	11	9	11	9	9
Average	3	2.75	2.25	2.75	2.25	2.25

Core Course: X

PH6CRT10: RELATIVITY AND SPECTROSCOPY

CO1 - Extend the Lorentz transformation to concepts of Length contraction, time dilation andrelativistic Mass.

CO2 - Outline the introductory concepts of general theory of relativity.

CO3 - Describe Vector Atom model

CO4 - Discuss Zeeman Effect

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	2	2	2	3
CO 2	2	3	3	3	3	3
CO 3	3	3	2	2	3	3
CO 4	1	2	3	1	3	3
Total	9	11	10	8	11	12
Average	2.25	2.75	2.5	2	2.75	3

Core Course: XI

PH6CRT11: NUCLEAR, PARTICLE PHYSICS AND ASTROPHYSICS

CO1 - Illustrate General properties of nucleus

CO2 - Classify Models of Nuclear structure

CO3 – Compare and explain Nuclear Radiation Detectors, Counters and Particle Accelerators

CO4 - Describe Gamow's theory of α decay.

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	3	3	3
CO 3	3		2	3	3	3
CO 4	3	2	1	3	2	3
Total	12	8	9	11	10	12
Average	3	2	2.25	2.75	2.5	3

Core Course: XII

PH6CRT12: SOLID STATE PHYSICS

CO1 - Define the fundamental terms needed to study the structure of a crystal.

CO2 - Distinguish the different crystal structures with examples.

CO3 - Discuss the classical and quantum theories of free electron model.

CO4 - Discuss band theory qualitatively using Kronig – Penney model.

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	2	3	2	1	3
CO 2	3	3	3	3	3	2
CO 3	3	2	3	3	3	3
CO 4	3	2	3	3	3	3
Total	12	9	12	11	10	11
Average	3	2.25	3	2.75	2.5	2.75

Choice Based Course

PH6CBT03: COMPUTATIONAL PHYSICS

CO1 – Solve Nonlinear Equations by Bisection, NewtonRaphson, Regula-Falsi , Secant and Fixed point iteration methods

CO2 Solve system of linear algebraic equations by Gauss elimination method, Gauss-Jordan method Factorization and Iterative methods

CO3 – Apply Regression and interpolation methods in Curve fitting

CO4 - Explain trapezoidal rule and Simpson's 1/3 and 1/8 rule for numerical integration also statealgorithm.

CP-PSO Matrix

Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	3	2	3
CO 2	1	3	3	3	3	3
CO 3	3	2	2	3	3	
CO 4	3	3	3	3	3	3
Total	10	11	11	12	11	9
Average	2.5	2.75	2.75	3	2.75	2.25

Physics Practical

SEMESTER 1&2 (First Year)
Core Practical 1: PH2CRP01 – Mechanics and Properties of Matter

Ist Semester

1. Symmetric Compound Pendulum – Determination of acceleration due to gravity (g), radius of gyration(K) and moment of inertia (I)
2. Asymmetric Compound Pendulum – Determination of acceleration due to gravity (g), radius of gyration(K) and moment of inertia (I)
3. Kater's pendulum – Determination of acceleration due to gravity (g)
4. Torsion Pendulum – Determination of rigidity modulus (n) and moment of in rigidity modulus (n) and moment of inertia (I)
6. Measurement of density of a solid – Sensibility method to find mass using beam balance and screw gauge / veniercalipers for dimension measurements
7. Static Torsion – Determination of rigidity modulus
8. Flywheel – Determination of moment of inertia

CO1 – Gain practical knowledge by applying the experimental methods to correlate with the Physics theory

CO2 - Apply the analytical techniques and graphical analysis to the experimental data

CO3 - Apply the mathematical concepts/equations to obtain quantitative results

CO4 - To understand the dynamics of different types of pendulum .

CP-PSO Matrix

Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	3	3	3
CO 3	3	2	3	3	3	3
CO 4	3	2	3	3	2	3
Total	12	10	12	11	10	12
Average	3	2.5	3	2.75	2.5	3

IInd Semester

1. Uniform bending – Pin and Microscope – Determination of Young's modulus
2. Non Uniform bending – Pin and Microscope – Determination of Young's modulus
3. Uniform bending – Optic Lever – Determination of Young's modulus
4. Non Uniform bending – Optic Lever – Determination of Young's modulus
5. Cantilever – Scale and telescope – Determination of Young's modulus
6. Cantilever – Pin and Microscope – Determination of Young's modulus
7. Variable pressure head – Determination of viscosity of a liquid
8. Capillary rise method – Determination of surface tension]

CO1 – Gain practical knowledge by applying the experimental methods to correlate with the Physics theory

CO2 - Apply the analytical techniques and graphical analysis to the experimental data

CO3 - Apply the mathematical concepts/equations to obtain quantitative results

CO4 - Study of bending behaviour beams and analyse the expression for young's modulus

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	2
CO 2	3	3	3	3	3	3
CO 3	3	2	3	2	3	3
CO 4	3	3	2	3	3	3
Total	12	11	11	10	11	11
Average	3	2.75	2.75	2.5	2.75	2.75

SEMESTER 3&4 (Second Year)
Core Practical 02: PH4CRP02 –Optics and Semiconductor Physics

III Semester

1. Liquid Lens – Determination of optical constants of a convex lens – water and mercury given
2. Liquid Lens – Determination of refractive index of a liquid – water and unknown liquid
3. Spectrometer – Prism – Determination of refractive index of material of the prism
4. Spectrometer – i – d curve – Determination of refractive index of material of the prism
5. Newton's rings – Determination of wavelength of sodium light
6. The air wedge – Determination of diameter of thin wire

CO1 – Gain practical knowledge by applying the experimental methods to correlate with the Physics theory

CO2 - Apply the analytical techniques and graphical analysis to the experimental data

CO3 - Apply the mathematical concepts/equations to obtain quantitative results

CO4 - To learn focal length of lens and optical constants of different media.

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	2	3	3	3	3
CO 3	3	2	2	3	3	3
CO 4	3	2	1	3	3	3
Total	12	9	9	11	11	12
Average	3	2.25	2.25	2.75	2.75	3

IV Semester

1. Zener characteristics – forward and reverse – Study of dynamic and static properties
2. Half wave rectifier – Study of ripple factor and load regulation with and without filter circuit
3. Full wave rectifier – (center tap) – Study of ripple factor and load regulation with and without filter circuit
4. Full wave rectifier – (bridge) – Study of ripple factor and load regulation with and without filter circuit
5. Voltage regulator using zener diode – Study of line and load regulations
6. Clippers – positive, negative and biased – Study of output waveforms
7. Clampers – positive, negative and biased – Study of output waveforms
8. OPAMP – inverter, non inverter and buffer – Study of gain

CO1 – Gain practical knowledge by applying the experimental methods to correlate with the Physics theory

CO2 - Apply the analytical techniques and graphical analysis to the experimental data

CO3 - Apply the mathematical concepts/equations to obtain quantitative results

CO4 - Distinguish between P-N diode and Zener diode.

CP-PSO Matrix

Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	1	3	3
CO 3	3	3	1	2	3	2
CO 4	2	3	3	3	3	2
Total	8	12	10	8	11	10
Average	2	3	2.5	2	2.75	2.5

SEMESTER 5 & 6 (Third Year)

Core Practical :03

PH6CRP03 – Electricity, Magnetism and LASER

Semester : 5

CO1-Using Potentiometer Measure resistance of wire

CO2-Calibrate low range and high range voltmeter using Potentiometer

CO3-Calibrate ammeter using Potentiometer and Tangent galvanometer.

CO4-Convert galvanometer into voltmeter and ammeter

CP-PSO Matrix

Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	3	3
CO 2	2	3	3	3	3	3
CO 3	3	2	2	2	3	3
CO 4	2	2	3	3	3	3
Total	10	10	11	10	12	12
Average	2.5	2.5	2.75	2.5	3	3

Semester : 6

CO1-Find magnetic moment of a bar magnet using Searle's vibration magnetometer

CO2-Measure resistivity of wireusing Carey Foster's bridge.

CO3-Verify Thevenin's and Norton's theorems

CO4-Determine wavelength of Laser using Grating

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	2	3	3	3	3	3
CO 3	3	2	2	2	3	3
CO 4	3	2	3	3	3	3
Total	11	10	11	10	11	12
Average	2.75	2.5	2.75	2.5	2.75	3

Core Practical :04

PH6CRP04 – Digital Electronics

Semester : 5

CO1 - Realize logic gates – AND, OR and NOT – Using diodes, transistors etc.

CO2 - Realize logic gates – AND, OR and NOT – Using universal gates

CO3- Verification of truth table of NAND, NOR, XOR and XNOR gates

CO4.-Verify De Morgan's theorems – Using IC 7400

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	2	3	3	3	3	
CO 3	3	2	2	2	3	3
CO 4	3	2	3	3	3	3
Total	11	10	11	10	11	9
Average	2.75	2.5	2.75	2.5	2.75	2.25

Semester : 6

CO1- ConstructAstableMultivibrator using Transistor and IC 555

CO2- Construct Monostable Multivibrator using Transistor and IC 555

CO3 - Costruct and verify A/D converter using IC 741

CO4- ConstructSR Flip Flops using IC 7400 and Verify truth table

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	2	3	3	3	3	3
CO 3	3	2	2	2	3	3
CO 4	3	2	3	3	3	3
Total	11	10	11	10	11	12
Average	2.75	2.5	2.75	2.5	2.75	3

Core Practical :05

PH6CRP05 – Thermal Physics, Spectroscopy and C++ Programming

Semester : 5

CO1 - Use Thermistor to find Temperature coefficient of resistance

CO2 -Using Carey Foster's bridge find the Temperature co-efficient of resistance

CO3 -Write and execute Computer programming in C++ to Generate Fibonacci series

CO4- Write and execute Computer programming in C++ to Convert a decimal number into binary number

CP-PSO Matrix

Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	3	3	3
CO 3	3	3	2	3	3	3
CO 4	3	2	2	3	3	3
Total	12	11	10	11	11	12
Average	3	2.75	2.5	2.75	2.75	3

Semester : 6

CO1 -Using Spectrometer find Cauchy's constants

CO2 - using Spectrometer find Resolving power of prism and grating.

CO3-Write and execute Computer programming in C++ to Solve a quadratic equation

CO4- Calculate 'g' from experimental data of Simple Pendulum using Computer programming in C++

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	3	3	3
CO 3	3	3	2	1	3	3
CO 4	3	2	2	3	3	3
Total	12	11	10	9	11	12
Average	3	2.75	2.5	2.25	2.75	3

Core Practical :06

PH6CRP06– Acoustics, Photonics and Advanced Semiconductor Physics

Semester : 5 CO1-Determine frequency of given tuning forkusingMelde's string

CO2-Use Sonometer to Determine frequency of AC

CO3- Determine frequency of given tuning fork, unknown mass and verification of laws of strings using sonometer

CO4--Measure and draw V- I characteristicsof solar cell **CP-PSO Matrix**
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	3	3	3
CO 3	3	2	3	3	3	3
CO 4	3	1	3	3	3	3
Total	12	9	12	11	11	12
Average	3	2.25	3	2.75	2.75	3

Semester : 6

CO1- Construct Voltage regulator using Zener diode and transistor and study line and load regulations

CO2- Construct and study Voltage multipliers – Doubler &Tripler

CO3- Realize adder and subtractor using OPAMP

CO4- Construct Pulse Width Modulator using IC 555

CP-PSO Matrix

Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	2	3	3	3	3	3
CO 3	3	2	2	2	3	3
CO 4	3	2	3	3	3	3
Total	11	10	11	10	11	12
Average	2.75	2.5	2.75	2.5	2.75	3

PH6PRO01 – Project and Industrial Visit

CO1 - Identify the need of lifelong learning and adapt to changing needs of profession and society and get updated with current state-of-art

CO2 - Express ideas clearly and effectively, both verbally and in written form.

CO3 - Find links across different areas of knowledge and generate, develop and evaluate ideas and information related to the project.

CO4 - Develops ability to work with peers, building teamwork and group skills.

CP-PSO Matrix

Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	3	2	3
CO 2	3	3	3	3	3	3
CO 3	3	3	3	3	3	3
CO 4	3	2	3	3	3	3
Total	12	11	12	12	11	12
Average	3	2.75	3	3	2.75	3

CORE COURSE 2

ELECTRONICS

PH1CRT21-Principles of electronics

CO1• Understand the current voltage characteristics of semiconductor devices,...

CO2• Design simple analogue circuits

CO3 • Evaluate frequency response to understand behavior of Electronics circuits

,CO4. Analyze dc circuits and relate ac models of semiconductor devices with their physical Operation.

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	1	3	3
CO 3	3	2	2	2	3	3
CO 4	3	3	1	3	3	3
Total	12	11	9	8	11	12
Average	3	2.75	2.25	2	2.75	3

PH1CRT22-Communication engineering

CO1• Understand fundamental principles of radio communication

C02 • Use of different modulation and demodulation techniques used in analog communication

C03 • Identify and solve basic communication problems

CO4 • Analyze transmitter and receiver circuits

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	3	3	3
CO 3	3		2	3	3	3
CO 4	3	2	3	2	3	2
Total	12	8	11	10	11	11
Average	3	2	2.75	2.25	2.75	2.75

PH2CRT23-POWER ELECTRONICS

CO1: understand the basics of Power Electronics.

CO2: learn the details of power semiconductor switches (Construction, Characteristics and operation).

CO3: understand the working of various types of converters.

CO4: learn how to analyse the converters and design the components of them, under various load types

CP-PSO Matrix

Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	3	3	2
CO 3	3	3	2	2	2	3
CO 4	3	2	2	1	3	3
Total	12	11	10	8	10	11
Average	3	2.75	2.5	2	2.5	2.75

PH2CRT24- ANALOGUE INTEGRATED CIRCUIT

CO1• Understand the fundamentals and areas of applications for the integrated circuits

CO2. Analyze important types of integrated circuits.

CO3. Demonstrate the ability to design practical circuits that perform the desired operations.

CO4• Understand the differences between theoretical, practical & simulated results in integrated circuits.

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	2	3	3	3	3	
CO 3	3	2	2	2	3	3
CO 4	3	2	3	3	3	3
Total	11	10	11	10	11	9
Average	2.75	2.5	2.75	2.5	2.75	2.25

PH3CRT25-MICROPROCESSOR AND ITS APPLICATION

CO1• Understands the basic programming in 8085

CO2• How to write application level programmes

CO3 • Design microprocessor applications like trafficlight, motorspeed control, washing machine

CO4.Designing of interfacing

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	2	3	3	2	3	1
CO 3	3	2	2	2	3	3
CO 4	3	3	3	3	2	3
Total	11	11	11	9	10	10
Average	2.75	2.75	2.75	2.25	2.5	2.5

PH3CRT26-NETWORK THEORY

CO1. Synthesize the network using passive elements.

CO2 • Apply concepts of electric network topology nodes, branches, loops to solve circuit

problems including the use of computer simulation.

CO3 • Apply time and frequency concepts of analysis.

CO4.Un derstands various functions of network and also the stability of network

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	2	3	2	3	3	1
CO 3	3	2	2	1	3	3
CO 4	3	3	3	3	3	3
Total	11	11	10	9	11	10
Average	2.75	2.75	2.5	2.25	2.75	2.5

PH4CRT 27-TROULESHOOTING OF AUDIO EQUIPMENT

CO1.Understands the concept of different loudspeakers,microphones etc

CO2.Uderstands different types of recording methods

CO3.Understands the working of MP3player,Hometheatre etc

CO4.Understands the working of DVD player

CP-PSO Matrix
Correlation levels as

1- Low 2- Medium 3- High

(Blank) For No Correlation

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	3	3	3
CO 3	3	2	3	2	3	3
CO 4	3	3	3	2	3	3
Total	12	11	12	9	11	12
Average	3	2.75	3	2.25	2.75	3

PH4CRT 28-TROULESHOOTING OF VIDEO EQUIPMENT

CO1. Understand the fundamental concepts of television transmitter and receiver systems, the transmission of video signals and importance of television standards to effectively work with broadcasting applications, trouble shooting of television systems.

CO2 Understand different colour television systems used worldwide and its compatibility.

CO3. Understand principles of digital video and component video signal.

CO4. Understand advanced TV technology, MAC signals and DTH technology

CP-PSO Matrix
Correlation levels as (Blank) For No Correlation

1- Low 2- Medium 3- High

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	3	3	1
CO 3	3	2	2	2	3	3
CO 4	3	2	3	3	3	3
Total	12	10	11	10	11	10
Average	3	2.5	2.75	2.5	2.75	2.5

PH5OPT03-COMPUTER HARDWARE AND NETWORKING (open course)

CO1. Perform all the functions with Electrical and Electronic Components related to Computer and Networking system following safety precautions.

CO2. Assemble and repair of Desktop Computer with all its hardware components.

CO3. Perform the operations of office package (word, excel, power point).

CO4. Assemble and repair Laptop and its hardware components

CP-PSO Matrix
Correlation levels as
(Blank) For No Correlation

1- Low 2- Medium 3- High

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	3	3	3
CO 3	3	2	3	3	3	3
CO 4	3	2	3	3	3	3
Total	12	10	12	11	11	12
Average	3	2.5	3	2.75	2.75	3

COMPLIMENTRY COURSES

MATHE MATICS

Semester I

MM2CMT01-Numerical Analysis, Matrices, Trignometry and Partial Differentiation

CO1 • Derive appropriate numerical methods to solve algebraic and transcendental equations

CO2 • Understands of how Numerical Methods can be used to find approximate solutions and study of error by approximation.

CO3 •Understanding the use of numerical methods for finding approximate root of algebraic equations

CO4 • The purpose of numerical analysis is to provide participants with the skills, knowledge and attitudes required to determine approximate numerical solutions to mathematical problems

CP-PSO Matrix

Correlation levels

as (Blank) For No Correlation

1- Low 2- Medium 3- High

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	3	3	3
CO 3	3	2	2	3	3	3
CO 4	3	1	3	3	3	3
Total	12	9	11	11	11	12
Average	3	2.25	2.75	2.75	2.75	3

Semester II MM2CMT02 Integral Calculus and Differential Equation

CO1• Understands how to evaluate double and triple integrals and their use for finding areas and volumes

CO2 • Solve the first-order linear differential equations

CO3 • Learn how the differential equations are used to study various physical problems such as mass attached to spring and electric circuit problem etc.

CO4 •Mathematical modeling abilities are focused • Understanding of various types of differential equation

CP-PSO Matrix

Correlation levels as (Blank) For No Correlation

1- Low 2- Medium 3- High

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	3	3	2
CO 3	1	3	2	2	3	3
CO 4	3	2	2	3	2	3
Total	10	11	10	10	10	11
Average	2.5	2.75	2.5	2.5	2.5	2.75

Semester III

MM2CMT03 Vector Calculus, Analytic Geometry and Abstract Algebra

CO1 • Understanding the abstract structure 'Groups', its Subgroups, cyclic Groups and Permutation Groups, homomorphism and isomorphism

CO2 • Understands Problem solving skills are enhanced.

CO3 • Understanding of Vector valued functions and their use for finding tangents, normal, and arc length of space curves.

CO4 • Understanding the applications of Green's, Stokes' and Divergence Theorem

CP-PSO Matrix

Correlation levels as (Blank) For No Correlation

1- Low 2- Medium 3- High

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	2	3	3	3	2	3
CO 2	3	3	3	3	3	3
CO 3	3	2	3	2	3	3
CO 4	3	2	2	3	3	3
Total	11	10	11	11	11	12
Average	2.75	2.5	2.75	2.75	2.75	3

Semester IV

MM2CMT04----- Fourier Series, Laplace Transforms and Complex Analysis

CO1 • Understanding properties of Complex Numbers and functions of a complex variable

CO2• Understanding the concept of limit, continuity, differentiability and analyticity of functions of complex variable

CO3. Understanding of some elementary functions of a complex variable

CO4• Understanding the concept of Integration of functions of complex variable along a contour

CP-PSO Matrix
Correlation levels as (Blank) For No Correlation

1- Low 2- Medium 3- High

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	2	3	3	3	2
CO 3	3	3	3	2		3
CO 4	3	2	2	3	2	2
Total	12	10	11	10	7	10
Average	3	2.5	2.75	2.5	1.75	2.5

COMPUTER SCENCE

Semester 1

CA1CMT01- Computer Fundamentals

CO1 . Familiarise operating systems, programming languages, peripheral devices, networking, multimedia and internet

CO2. Understand how logic circuits and Boolean algebra forms as the basics of digital computer

CO3. Analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions.

CO4. Apply computer science theory and software development fundamentals to produce computing-based solutions.

CP-PSO Matrix

Correlation levels as (Blank) For No Correlation

1- Low 2- Medium 3- High

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	3	3	3
CO 3		3	2		3	3
CO 4	3	2	2	3	2	3
Total	9	11	10	8	10	12
Average	2.25	2.75	2.5	2	2.5	3

Semester 2

CA2CMT02-Programing in C language

CO1. Able to implement the algorithms and draw flowcharts for solving Mathematical and Engineering problems.

CO2.Demonstrate an understanding of computer programming language concepts.

CO3. To be able to develop C programs on linux platform.

CO4. Ability to design and develop Computer programs, analyzes, and interprets the concept of pointers, declarations, initialization, operations on pointers and their usage.

CP-PSO Matrix

Correlation levels as (Blank) For No Correlation

1- Low 2- Medium 3- High

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	2	3
CO 2	3	3	3	3	3	3
CO 3	3	3	2		3	3
CO 4	3	3	2	3	2	3
Total	12	12	10	8	10	12
Average	3	3	2.5	2	2.5	3

Semester 3

CA3CMT03- Web Technology and Programming

CO1. Design and development of web-pages and web-applications

CO2. Retrieval of information, use of documentation and standards

CO3. Good design, universal design, multi platform web applications

CO4. Formats and languages used in modern web-pages: HTML, XHTML, CSS, XML, XSLT, Javascript, DOM

CP-PSO Matrix

Correlation levels as (Blank) For No Correlation

1- Low 2- Medium 3- High

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	3	2	3	3
CO 2	3	2	3	3	3	2
CO 3	3	3	3	3	3	3
CO 4	3	2	2	3	2	
Total	12	10	11	11	11	8
Average	3	2.5	2.75	2.75	2.75	2

Semester 4

CA4CMT04- Visual Programming Techniques

CO1. Create a project. (WC,CCT)

CO2. Use the IDE. (WC,CCT)

CO3. Create a VB application. (WC,CCT)

CO4. Use Picture Box controls, Text Box controls, and Command Button

CP-PSO Matrix

Correlation levels as (Blank) For No Correlation

1- Low 2- Medium 3- High

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO 1	3	3	2	2	2	3
CO 2	3	1	3	3	3	2
CO 3	3	3	2	3	3	3
CO 4	3	2	2	3	3	3
Total	12	9	9	11	11	11
Average	3	2.25	2.25	2.75	2.75	2.75