# K.S. RANGASAMY COLLEGE OF ARTS AND SCIENCE (AUTONOMOUS) TIRUCHENGODE-637 215



# DEPARTMENT OF PHYSICS MASTER OF SCIENCE (PHYSICS) PROGRAMME OUTCOMES (PO)

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

- PO 1: Describe the advanced concepts in theoretical and experimental Physics.
- PO 2: Utilize the new concepts in thrust areas of domain to take research as a career.
- PO 3: Apply the domain knowledge to understand the nature of Universe.
- PO 4: Analyze and create the solutions for real time problems in various areas of physical science.
- PO 5: Formulate the multidisciplinary knowledge to kindle research interest for the benefit of society.

### PROGRAMME SPECIFIC OUTCOMES (PSO)

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

- PSO 1: Demonstrate the laws and nature of various physical phenomena.
- **PSO 2**: Explain the advanced theories and models in various areas of physical science.
- **PSO 3**: Apply the theories learnt and the skills acquired to solve multifaceted problems in Physics.
- PSO 4: Utilize the analytical and computational skills for solving real time problems.
- PSO 5: Formulate the multidisciplinary knowledge for creative synthesis, individual thoughts and collaborative action to face the global challenges.

COLLEGE OF ARTS & SCIENCE AUTONOMOUS)

TIRUCHENGODE - 637

Mr. M. PRASAD, M.Sc., M.B.A., M., Millian, Controller of Examinations K.S. Rangasamy College of Arts & Science (Autonomy), Tiruchengode - 637 215. Tamilnady, mora.

18PPHM101	CORE I: MATHEMATICAL PHYSICS	SEMESTER - I

### COURSE OUTCOMES (CO)

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

CO1	Explain the concept of vector space and tensor for solving problems in dynamics.
CO 2	Analyze the problems in matrix, Fourier series and transforms.
CO3	Know the concepts of some special functions and their solutions.
CO 4	Analyze the complex functions for solving complex problems.
CO 5	Apply group theory for understanding the molecular vibrations.
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#### **MAPPING**

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PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
H	M	Н	Н	Н	M	Н	Н		M
M	M	Н	Н	Н	M	Н	Н		M
H	M	Н	Н	Н	L	Н	Н		Н
L	Н	Н	Н	M	L	Н	Н		M
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H-High; M-Medium; L-Low;

18PPHM102	CORE II: CLASSICAL MECHANICS	SEMESTER - I
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### **COURSE OUTCOMES (CO)**

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

CO1	Explain the motion of macroscopic objects through Lagrange equations.
CO 2	Describe the Hamilton's formulation and generating functions
CO3	Evaluate the central force problems particularly planetary motion.
CO 4	Analyze the kinematics of rigid body and Euler's equations of motion.
CO <sub>5</sub>	Apply the Hamilton-Jacobi theory for small oscillations.

#### 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	L	M	Н	Н	M	Н	Н	Н	Н	T
CO 2	L	M	Н	Н	L	M	Н	Н	Н	M
CO 3	L	M	Н	Н	L	Н	Н	H	Н	M
CO 4	M	M	Н	Н	M	Н	Н	Н	M	M
CO 5	M	M	Н	Н	L	M	H	H	M	M

H-High; M-Medium; L-Low;

K.S. Rangasamy College of Arts & Science (Autonomous)
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18PPHM103 CORE III: STATISTICAL MECHANICS SEMESTER - I

### COURSE OUTCOMES (CO)

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

Explain the fundamentals of thermodynamics and its correlation with
classical mechanics.
Apply the concepts of phase space, ensembles and Liouville's theorem.
Explain the classical distribution law, Gibbs' paradox and Partition function
Know the various statistics and concept of Bosons.
Explain the concept of Fermion and advanced phenomena through quantum statistics.

#### MAPPING

PO/PSO										
CO	PO1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	M	L	Н	Н	M	Н	M	Н	Н	M
CO 2	M	L	Н	Н	M	Н	M	Н	H	
CO3	Н	Н	Н	Н	M	Н	H			M
CO 4	Н	M	Н	Н				H	Н	M
					M	Н	H	H	H	M
CO 5	M	H	H	H	M	H	Н	Н	Н	M

H-High; M-Medium; L-Low;

18PPHM104	CORE VI: CONDENSED MATTER PHYSICS	SEMESTER - I
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### **COURSE OUTCOMES (CO)**

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

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CO1	Explain the concepts of crystal structure, X-ray diffraction and crystal defects.
CO 2	Describe the nature of various bonds in solids, lattice vibrations and thermal properties of solids.
CO3	Apply the free electron theory and band theory to understand the properties of solids.
CO 4	Describe the theories about magnetic and dielectric properties of materials.
CO 5	Explain the impact of superconductivity on scientific world.

#### MAPPING

PO/PSO										
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	Н	Н	Н	Н	Н	M	M	Н	H	H
CO 2	Н	M	Н	Н	M	M	Н	Н		
CO3	Н	M	Н	Н	I	M		GENERAL THE	H	Н
CO 4	N						Н	H	Н	M
	M	H	H	H	M	H	H	H	H	M
CO 5	H	H	H	Н	Н	M	Н	Н	JA'H HAD	9 H
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6. S. Rangasamy College of Arts & Science (Autonomous) TIRUCHENGODE - 637 215 · Jankal-Dt, Tamil Nadu, INDIA



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### CORE PRACTICAL I: ADVANCED PHYSICS PRACTICAL I

SEMESTER - I

### **COURSE OUTCOMES (CO)**

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

CO1	Familia 1 1 1
COI	Explain and analyze the various physical phenomena such as deformation,
	polarizability, Hall effect, magnetization, X-ray diffraction, thermal and
	electrical conduction.
CO 2	Apply various methods to determine the different physical parameter of
	given materials such as young's modulus, Hall co-efficient, hand gan
	carrier concentration, magnetic energy loss, magnetic susceptibility
	crystalline parameters, conductivity, dielectric loss, and resistivity
CO 3	Apply different methods to determine the various physical constants such
	as Stefan's constant, Planck's constant, Rydberg's constant and change of
in the	electron.

18PLS101	CAREER COMPETENCY SKILLS I	SEMESTER - I
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### **COURSE OUTCOMES (CO)**

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

CO1	Carry out mathematical calculations using shortcuts.
CO 2	Calculate Problems on Ages with shortcuts.
CO3	Understand the core concepts of Pipes & Cisterns, Calendar & Clocks.
CO 4	Obtain knowledge on shortcuts to Time & Work and Time & Distance.
CO 5	Calculate Ratio & Proportion, Partnership with shortcuts.

18PPHM201	CORE V: QUANTUM MECHANICS I	SEMESTER - II
COURSE OUTCO	OMES (CO)	

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

CO1	Explain the fundamentals of wave mechanics
CO 2	Apply the concept of eigen energy values and energy states for real time systems in atomic and nuclear levels.
CO3	Evaluate the angular momenta of electron systems through operator formalism
CO 4	Analyze the effect of perturbation on quantum systems using approximation methods.
CO 5	Create symmetric and asymmetric functions for identical particles.

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A. S. Rangasamy College of Arts & Science

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Mr. M. PRASAD, M.Sc., M.B.A., Controller of Examinations
K.S. Rangasamy College of Aris & Science (Automaticular Truchengode - 637 215, Tamilnadu, 2004)

PO/PSØ										
CO	PO1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	DCC -		
CO1	M	M	Н		T		1302	PSO 3	PSO 4	PSO 5
CO 2				Н	L	M	H	H	I.	Н
	M	M	H	H	L	Н	Н	TT	3.5	
CO3	M	M	Н	Н	3.6			H	M	H
CO 4					M	H	H	H	M	H
	H	H	H	H	M	Н	Н	Н		
CO 5	H	Н	Н	Н				п	M	M
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18PPHM202	CORE VI: ELECTROMAGNETIC	
101111111202	THEORY	SEMESTER - II

### COURSE OUTCOMES (CO)

After completion of the course, the students will be

Describe the electrostatic force, field and potential for system of statics  Charges
Apply the concept method of images and boundary value problem to dielectrics.
Analyze the magnetics force, field and potential for system of statics charges localized current distribution.
Evaluate the relation between electric and magnetic field, conservation laws and radiating systems.
Apply electromagnetic theories to explain about electromagnetic waves and its related phenomena.

PO/PSO										TOUR BE
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	DCO 4	200 -
CO1	M	M	Н	II	7			1303	PSO 4	PSO 5
			11	H	L	H	M	H	Н	M
CO 2	M	M	H	H	I	Н	TT			IAI
CO3	Н	N				11	H	H	H	M
	11	M	H	H	M	H	H	Н	TT	3.6
CO 4	H	M	Н	Н	3.6			11	H	M
COF				11	M	H	H	H	H	T
CO 5	H	H	H	H	M	Н	Н			L
H-High	. 1/1//	edium l			411	11	п	H	H	M

18PPHEL201		A SA PERSONAL PROPERTY OF THE PARTY OF THE P
101 FFIEL201	ELECTIVE I: MODERN OPTICS	SEMESTER - II
COURSE OUTCOM		SEMESTER - II

### DUTCOMES (CO)

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

Describe the phenomena of polarization and double refraction.
Explain the principle, construction and working of various lasers.
Explain the fundamentals of optical fibers and related concepts.
Analyze the various optical non-linear phenomena.

K. S. Rangasamy College of Arts & Science (Autonomous) TIRUCHENGODE - 637 215

Namakkal-Dt. Tamil Nadu. INDIA

CONTROBLER OF EXAMINATIONS Mr. M. PRASAD, M.Sc. M.B.A., M.PH.

Controller of Examinations FR Pannaeams College of Arts & Science (Automon-)

PO/PSO										
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	M	M	Н	Н	T				1304	
COA					L	M	H	H	L	H
CO 2	M	M	H	H	L	H	Н	Н	M	Н
CO3	M	M	Н	Н	14				171	П
				11	M	H	H	H	M	H
CO 4	H	H	H	H	M	Н	Н	Н	M	
CO 5	H	Н	TT	TT				11	IVI	M
	7.7.7.6		H	H	M	H	H	H	M	M

H-High; M-Medium; L-Low;

18PPHM202	CORE VI: ELECTROMAGNETIC THEORY	SEMESTER - II
	THEORY	

### COURSE OUTCOMES (CO)

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

CO1	Describe the electrostatic force, field and potential for system of statics Charges						
CO 2	Apply the concept method of images and boundary value problem to dielectrics.						
CO3	Analyze the magnetics force, field and potential for system of statics charges localized current distribution.						
CO 4	Evaluate the relation between electric and magnetic field, conservation laws and radiating systems.						
CO 5	Apply electromagnetic theories to explain about electromagnetic waves and its related phenomena.						

#### MAPPING

PO/PSO										T
co	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	M	M	Н	Н	L	Н	M	Н	Н	M
CO 2	M	M	Н	Н	L	Н	Н	Н		
CO3	Н	M	Н	Н					Н	M
CO 4	H				M	Н	H	H	H	M
		M	Н	H	M	H	H	H	Н	L
CO 5	H	H	H	H	M	Н	Н	Н	Н	M
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H-High; M-Medium; L-Low;

18PPHEL201	ELECTIVE I: MODERN OPTICS	SEMESTER - II
COURSE OUTCOM	AES (CO)	

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

CO1	Describe the phenomena of polarization and double refraction.
CO 2	Explain the principle, construction and working of various lasers.
CO3	Explain the fundamentals of optical fibers and related concepts.
CO 4	Analyze the various optical non-linear phenomena.
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A. S. Rangasamy College of Arts & Science (Autonomous)

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Mr. M. PANSAD, M.Sc. M.B.A., M.PM. Controller of Examinations

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PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
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Н	M	M	Н					
Н	M	M					T	H
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H-High; M-Medium; L-Low;

18PPHMP201 CORE PRACTICAL II: ADVANCED PHYSICS PRACTICAL II	SEMESTER - II	
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### **COURSE OUTCOMES (CO)**

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

CO 1	Understand the various physical phenomena such as absorption,
	interference, polarization, reflection, dispersion and diffraction of EM wave as
	well as electrostatic attraction of charges, compressibility of liquid, photosensitivity.
CO 2	Apply various methods to determine the different physical parameter of given materials such as ultrasonic velocity, magnetic susceptibility, and dielectric constant.
CO3	Analyze the characteristics of GM counter, optical fibers and photosensitive devices.

18PCSPHI201	INTER DISCIPLINARY COURSE I: COMPUTER GRAPHICS AND MULTIMEDIA	SEMESTER - II
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### RSE OUTCOMES (CO)

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

Know the concept of 2D transformations, image clipping methods and picture
construction techniques.
Describe the 3D concepts and 3D modeling.
Know the fundamentals of multimedia and its various applications.
Describe the various multimedia network services and real time interchange.
Explain the design of various multimedia systems.

PRINCIPAL K. S. Rangasamy College of Arts & Science (Autonomous) TIRUCHENGODE - 637 215 Namakkal-Dt, Tamil Nadu. IND.



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CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	M	M	M	M	Н	M	T			
CO 2	M	TT					L	H	H	H
	IVI	H	M	M	H	M	M	Н	Н	Н
CO3	H	H	M	M	Н	M	T			
CO 4	T	TT	-				L	H	H	H
	L	H	L	H	H	M	M	H	Н	Н
CO 5	L	H	I.	H	Н	M	T			
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18PCSPHIP201	INTER DISCIPLINARY COURSE	T
	PRACTICAL I:	CEMECTED II
	MULTIMEDIA TOOLS	SEMESTER - II

### **COURSE OUTCOMES (CO)**

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

CO1	Work with retouch, manipulate and compress the given images using multimedia tools.
CO 2	Practice on converting gray image to color image.
CO3	Practice on various kinds animation as well as video and audio effects.

18PVE201	VALUE EDUCATION:	
101 4 1201	<b>HUMAN RIGHTS</b>	SEMESTER - II

### **COURSE OUTCOMES:**

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

CO1	Understand the core principles of human rights philosophy.					
CO 2	Know the importance and functions of human rights commission.					
CO3	Apply their rights for democracy, human rights and gender equality					
CO 4	Know the rights from the Governance, economic and social development through various Acts.					
CO 5	Understand the right to information Act, rights for women, children, Nomads, refugees and various sector of people in our country.					

18PLS201	CAREER COMPETENCY SKILLS II	SEMESTER - II
<b>COURSE OUT</b>		THE STEEL II

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

CO1	Understand the types of Interviews, Dress Code and Styles.
CO 2	Develop Resume content and structures.
CO3	Improve body language skills.
CO 4	Know how to represent self through communication.
CO 5	Attain the different level of Learning State
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A. S. Rangasamy College of Arts & Science (Autonomous)

18PPHM301 CORE VII: QUANTUM MECHANICS II SEMESTER - III COURSE OUTCOMES (CO)

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

COI	Explain the students will be able to
001	Explain the methods for solving time dependent perturbation systems.  Demonstrate the scattering phonomer of this statement is a simple statement of the scattering phonomer of this statement.
CO3	Utilize the quantum concept to realize the radiation phenomena.
CO <sub>4</sub>	Apply the annual collect to realize the radiation phenomena.
	Pry the qualitum concepts for relativistic con-
CO 5	Analyze the fields that have more number of identical systems.
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#### MAPPING

PO/PSO	and story				THE USE			2015		
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	DCC a			
CO1	M	M	M				PSO 2	PSO 3	PSO 4	PSO 5
CO 2	M	183		M	H	M	H	H	Н	M
		H	M	M	H	H	Н	Н		141
CO 3	H	H	M	M	Н				H	L
CO4	T	Н				M	H	H	H	M
	L	п	L	H	H	M	H	Н	TT	
CO 5	L	H	L	Н	Н	14			H	M
H-High	; M-Me	dium: I	-Low:		11	M	H	H	Н	M

H-High; M-Medium; L-Low;

18PPHM302	CORE VIII: ADVANCED	M I I I I I I I I
	ELECTRONICS	SEMESTER - III

### COURSE OUTCOMES (CO)

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

COL	Descrit 41
1001	Describe the operating principles of special semiconductor devices and
	- Frederic devices.
CO 2	Explain the fabrication of IC's and basic parameters of IC 741.
CO3	Design the circuit using 10.741.
00 :	Design the circuit using IC 741 and IC 555 for various applications.
CO 4	Analyze the working of various flip-flops, registers and counters
COS	Design the singuity (
200	Design the circuits for analog to digital conversion or vice versa.
MAPP	ING

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CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	DOG 4	4100
CO1	M	M	M	M				1303	PSO 4	PSO 5
CO 2				IVI	H	H	H	H	I.	M
CO 2	H	M	M	M	H	Н	Н	TT	MORE THE S	
CO3	Н	Н	M	1/			11	H	L	M
			1/1	M	H	M	L	H	Н	M
CO 4	H	M	L	H	Н	M	N	170000		
CO 5	Н	Н	T				M	H	H	H
		The second second	L	H	H	M	H	Н	Н	Н
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K. S. Rangasamy College of Arts & Science (Autonomous) TIRUCHENGODE - 637 215 Samukkal-Dt. Tamil Nadu. INDIA



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K.S. Rangassay College of Arts & Edience (Autor --- C Truchergedn - 687 215. Tamilharti. 18PPHM303

# CORE IX: MICROPROCESSOR AND MICROCONTROLLER

SEMESTER - III

#### **COURSE OUTCOMES (CO)**

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

CO1	Explain the fundamentals and architecture 8085 microprocessor.						
CO 2	Describe the 8085 instruction set and addressing modes through simple						
	programs.						
CO3	Apply the 8085 microprocessor to interface the various peripheral devices.						
CO 4	Describe the architecture, programming and interfacing of 8051 microcontroller.						
CO 5	Design the simple program based on microcontroller 8051.						

#### **MAPPING**

PO/PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	M	L	M	M	L	Н	M	Н	Н	L
CO 2	Н	M	M	Н	M	M	M	Н	Н	M
CO3	Н	M	М	Н	M	M	Н	Н	Н	M
CO 4	Н	M	M	Н	Н	M	Н	Н	Н	M
CO 5	M	Н	M	Н	Н	M	M	Н	M	Н

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18PPHEL301	ELECTIVE II: PHYSICS OF NANOSCALE	SEMESTER - III
	NANOSCALL	

#### **COURSE OUTCOMES (CO)**

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

CO1	Explain the fundamentals of nanoscience.
CO 2	Describe the various methods for synthesis of nanoparticles.
CO3	Analyze the various properties of nanomaterials.
CO 4	Apply the different analytical method for the characterization of nanoparticles
CO 5	Utilize the nanostructured materials for various applications

#### MAPPING

PO/PSO			7.6							
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	Н	Н	H	Н	Н	Н	M	M	M	Н
CO 2	Н	Н	Н	Н	Н	Н	Sound Far S	M	M	Н
CO3	Н	Н	Н	H	Н	Н	M	Hone	maH	Н
CO 4	H	Н	M	H	Н	Н	H	HIN H	HUS	/ H
CO5	H	Н	M	Н	EOF	ARTS &	M	M	M	BAH

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18PPHEL302 ELECTIVE II: CRYSTAL GROWTH
AND THIN FILM PHYSICS SEMESTER - III

### COURSE OUTCOMES (CO)

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

CO1	Explain the fundamentals of crystal and thin film growth.
CO 2	Describe the various solution growth and gel growth techniques for grow single crystals.
CO3	Demonstrate the various melt and vapour growth techniques for grow single crystals.
CO 4	Apply the different deposition techniques to prepare thin films.
CO 5	Utilize the various analytical methods for characterizing the crystalline materials.

#### **MAPPING**

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PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
H	M	Н	M	Н	Н	Н	M		M
M	Н	Н	Н	Н	Н	M	Н		M
M	Н	Н	Н	Н	Н	M	Н		M
Н	Н	L	Н	Н	Н	M	Н		Н
Н	Н	L	Н	Н	Н	M			Н
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H-High; M-Medium; L-Low;

18PPHEL303	ELECTIVE II: INSTRUMENTAL METHODS OF ANALYSIS	SEMESTER - III
	WEITIODS OF ANALISIS	the second control of

### **COURSE OUTCOMES (CO)**

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

CO1	Explain the different errors, analysis of experimental data and concept of stress analysis.
CO 2	Describe the principle and working of different analytical methods for thermal analysis.
CO3	Utilize the X-ray diffraction technique for characterizing the crystals and thin films.
CO 4	Explain the fundamentals of various optical and electron microscopic techniques.
CO 5	Apply the various analytical methods for measuring the electrical properties of materials.



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K.S. Rangasamy College of Arts & Science Mutanomoral

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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
CO1	M	M	M	M	Н	M	Н	Н	Н	M
CO 2	Н	Н	M	Н	Н	Н	Н	Н	Н	L
CO3	Н	Н	M	Н	Н	Н	Н	Н	Н	M
CO 4	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н
CO 5	Н	Н	Н	Н	Н	Н	M	Н	Н	M

H-High; M-Medium; L-Low;

18PPHMP301 CORE PRACTICAL III: ADVANCEI ELECTRONICS PRACTICAL	SEMESTER - III
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#### **COURSE OUTCOMES (CO)**

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

	Explain the characteristics of various electronic devices.
CO 2	Design the electronic circuits for simple applications using IC's.
CO3	Create the program for simple applications based on 8085 and 8051.

COLLAGRA E	INTER DISCIPLINARY COURSE II:	
18PECPHI301	MODERN BIOMEDICAL	SEMESTER - III
M	INSTRUMENTATION	M M EDD

### **COURSE OUTCOMES (CO)**

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

CO 1	Know the fundamentals of human physiological systems and bioelectric potentials.
CO 2	Describe the operations of electrodes and transducers.
CO3	Explain the types of bioelectric signals and instruments to be used to detect.
CO 4	Evaluate the operation of physiological assist devices.
CO 5	Describe the operation theatre and medical imaging equipments.

#### **MAPPING**

PO/PSO					- X	- The state of the	- Halana			E-079 f
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	M	M	M	M	Н	Н	M	L	M	Н
CO 2	Н	M	M	M	Н	Н	Н	M	Н	Н
CO3	Н	Н	M	M	Н	Н	Н	M	Н	Н
CO 4	Н	M	L	Н	Н	M	Н	L	Н	Н
CO 5	Н	Н	L	H	H	M	M	L	Н	Н

H-High; M-Medium; L-Low;

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Reschangede - E37 215. Terumananan

**18PBCPHI301** 

## INTER DISCIPLINARY COURSE II: MOLECULAR BIOPHYSICS

SEMESTER - III

#### **COURSE OUTCOMES (CO)**

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

CO 1	Know the interaction of water molecules with physiological
CO 2	Explain the structure and properties of different carbohydrates molecules
CO3	Describe about amino acids, protein, methods for determination of proteins
CO 4	Know about lipids and biological membrane.
CO 5	Describe the structure of nucleic acids, DNA and RNA.

#### MAPPING

PO/PSO			7111							T
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	M	M	M	M	Н	Н	L	M	Н	Н
CO 2	M	M	M	M	Н	M	L	M	Н	Н
CO 3	M	M	M	M	Н	M	Н	Н	Н	Н
CO 4	M	M	L	M	Н	M	M	M	Н	Н
CO 5	L	Н	L	L	Н	M	M	Н	Н	Н

H-High; M-Medium; L-Low;

18PPHM401	CORE X: SPECTROSCOPY	SEMESTER - IV

#### **COURSE OUTCOMES (CO)**

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

CO1	Explain the about IR and microwave spectroscopy.
CO 2	Describe the principle, working and application of Raman spectrometer.
CO3	Analyze the materials using UV and photoluminescence spectroscopy.
CO 4	Analyze the interaction of EM wave with mater under magnetic field.
CO 5	Apply NQR and Mossbauer spectroscopy methods to characterize the
	materials.

#### MAPPING

PO/PSØ CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н
CO 2	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н
CO3	Н	Н	M	Н	Н	Н	Н	Н	Н	Н
CO 4	Н	H	Н	Н	Н	Н	Н	Н	Н	Н
CO 5	Н	H	Н	Н	Н	Н	Н	Н	Н	M

H-High; M-Medium; L-Low;

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Controller of Examinations

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18PPHM402

# CORE XI: NUCLEAR AND PARTICLE PHYSICS

SEMESTER - IV

COURSE OUTCOMES (CO)

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

CO1	Explain the nuclear structure, binding energy, stability and forces acting on Nucleons
CO 2	Know the various radioactive decay process and the devices which are used to detect them.
CO3	Analyze the process of nuclear fission and fusion as well as the characteristics of neutron.
CO 4	Analyze the various nuclear reactions and related theories.
CO 5	Know the different types of elementary particles and their interactions.

#### **MAPPING**

PO/PSO					-	14-1-1				
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	Н	M	Н	Н	M	Н	Н	Н	Н	Н
CO 2	Н	M	Н	H	M	Н	Н	Н	Н	Н
CO3	Н	M	Н	Н	M	Н	Н	Н	Н	Н
CO 4	Н	Н	Н	Н	L	Н	Н	Н	Н	H
CO 5	Н	Н	Н	Н	L	Н	Н	Н	Н	M

H-High; M-Medium; L-Low;

18PPHM403	CORE XII: COMPUTATIONAL PHYSICS	SEMESTER _ IV
	COME COMI CINITONAL TITISICS	SEMESTER - IV

### COURSE OUTCOMES (CO)

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

CO 1	Solve the problems using various numerical differentiation methods.
CO 2	Solve the problems using various numerical integration methods.
CO3	Explain the fundamentals of Matlab.
	Design the simple Matlab program.
CO 5	Create the different 2D and 3D graphics using Matlab.

#### MAPPING

		FF	TH	TH	THE	H			
PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
M	M	M	M	Н	L	Н	Н		Н
Н	M	M	M	Н	L	Н	Н		Н
Н	Н	M	M	Н	M	Н			Н
Н	M	L	Н	Н	M				Н
Н	Н	L	Н	H	M				M
	M H H	M M H M H H H M	M M M H M M H H M L	M M M M H M M M H H M M H H H H H H	M M M M H H M M M H H H H M M H	M M M M H L H M M M H L H H M M H M H M M H M	M M M M H L H H M M M H L H H H H M M H M H H H M H M H	M M M M H L H H H M M M H L H H H H H H H H H H H M M H M H H H H H H	M       M       M       M       H       L       H       H       H       H         H       H       M       M       H       L       H

H-High; M-Medium; L-Low;

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#### **CORE PRACTICAL IV:** 18PPHMP401 SEMESTER - IV COMPUTATION USING MATLAB COURSE OUTCOMES (CO)

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

CO1	Compute simular in the students will be able to
COI	Compute simple equations such as charging of a capacitor and full wave
	rectifier equation through Matlab program.
CO <sub>2</sub>	Plot the characteristic curve of NPN transistor, diode, RLC circuit, Frequency
	response curve of low pass filter
CO3	Find out the solution for differential equation as well as numerical problems.
CO 4	Compute matrix and find out the solution.

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