

MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE

(An Autonomous College)

Affiliated to Periyar University, Salem | Accredited by NAAC with 'A' Grade

Recognized by UGC under Section 2(f) & 12 (B)



ESTD-1994

**MUTHAYAMMAL
COLLEGE OF ARTS
AND SCIENCE**

(Autonomous)

A UNIT OF VANETRA GROUP

| Learn.
Lead

www.muthayammal.in

DEGREE OF BACHELOR OF SCIENCE

Learning Outcomes - Based Curriculum Framework

- Choice Based Credit System

Syllabus for B.Sc., Physics (Semester Pattern)

(For Candidates admitted from the academic year
2021 -2022 and onwards)

MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE (AUTONOMOUS)

Rasipuram - 637 408

VISION

☐☐To redefine the scope of higher education by infusing into each of our pursuits, initiatives that will encourage intellectual, emotional, social and spiritual growth, thereby nurturing a generation of committed, knowledgeable and socially responsible citizens.

MISSION

- ☐☐To Ensure State of the world learning experience
- ☐☐To Espouse value based Education
- ☐☐To Empower rural education
- ☐☐To Instill the spirit of entrepreneurship and enterprise
- ☐☐To Create a resource pool of socially responsible world citizens

QUALITY POLICY

To Seek - To Strive - To Achieve greater heights in Arts & Science, Engineering, Technological and Management Education without compromising on the Quality of Education.

DEPARTMENT OF PHYSICS

Vision

To redefine the scope of higher education by infusing into each of our pursuits, initiatives that will encourage intellectual, emotional, social and spiritual growth, there by nurturing a generation of committed, Knowledgeable and socially responsible citizens.

Mission

- *To Ensure State of the world learning experience
- * To espouse value based Education
- *To empower rural education
- *To instill the sprite of entrepreneurship and enterprise
- *To create a resource pool of socially responsible world citizens

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

- PEO1: Post Graduates will be able to promote learning environment to meet the Industry expectation.
- PEO2: Post Graduates will be incorporated the critical thinking with good Communication and Leadership skills to become a self-employed.
- PEO3: Post Graduates will be upholding the human values and environmental sustenance for the betterment of the society.

GRADUATE ATTRIBUTES

The Graduate Attributes of B. Sc PHYSICS are:

- GA 1 Analytical Reasoning
- GA 2 Critical Thinking
- GA 3 Problem Solving Skills
- GA 4 Communication Skills
- GA 5 Leadership Quality
- GA 6 Team work
- GA 7 Lifelong Learning

PROGRAMME OUTCOMES

- PO1: Graduates will acquire dynamic skills through proper perception of the course objectives that leads to scientific and
Analytical comprehension of the concepts;
- PO2: Graduates will focus on sustainable goals that might bring about spherical
Developments
- PO3: Graduates will infuse a spirit converging on bricking a team work, interpersonal and
Administrative skills to think critically and execute effectively
- PO4: Graduates will apply reasoning appropriately to scale the humps in learning and solute
them to the core.
- PO5: Graduates will engage the skills obtained in independent and collaborative learning as
a perennial process.

PROGRAMME SPECIFIC OUTCOMES

After the successful completion of M. Sc PHYSICS program, the students are expected to

PSO1: Gained the ability to identify and analyze complex Physics problems using the principles of Physics with suitable mathematical tools.

PSO2: Developed skills to communicate effectively with peers, professionals and society at large and demonstrate professional ethics

PSO3: Molded to adopt, absorb and develop innovative ideas

PSO4: Inculcate scientific temper and motivate student to take up further research

PSO5: Exhibited effective individual talent, and engaged themselves in lifelong learning and dissemination.




S.No.	COURSE_CODE	TITLE OF THE COURSE	Hrs./W		CREDITPOI NTS	MAX.MARKS		
			Lect.	Lab.		CIA	ESE	TOTAL
SEMESTER - I								
1	21M1UFTA01	TAMIL - I	5		3	25	75	100
2	21M1UCEN01	COMMUNICATIVE ENGLISH - I	5		3	25	75	100
3	21M1UPHC01	PROPERTIES OF MATTER AND ACOUSTICS	5		5	25	75	100
4	21M2UPIIP01	PRACTICAL : PHYSICS - I		3				
5	21M1UAAA01	ALLIED: ALGEBRA AND CALCULUS	5		4	25	75	100
6	21M2UAAAP2	PRACTICAL : ALLIED MATHAMETICS		2				
7	21M1UVED01	YOGA	2		2	100		
8	21M1UPE501	PROFESSIONAL ENGLISH FOR PHYSICAL SCIENCE - I	3		2	25	75	100
		TOTAL	25	5	19	225	375	500
SEMESTER - II								
1	21M2UFTA02	TAMIL - II	5		3	25	75	100
2	21M2UCEN02	COMMUNICATIVE ENGLISH - II	5		3	25	75	100
3	21M2UPHC02	MECHANICS	5		5	25	75	100
4	21M2UPIIP01	PRACTICAL : PHYSICS - I		3	3	40	60	100
5	21M2UAAA02	ALLIED:DIFFERENTIAL EQUATIONS AND LAPLACE TRANSFORMS	5		4	25	75	100
6	21M2UAAAP2	PRACTICAL : ALLIED MATHAMETICS		2	2	40	60	100
7	21M2UEVS01	ENVIRONMENTAL STUDIES	2		2	100		
8	21M2UPE502	PROFESSIONAL ENGLISH FOR PHYSICAL SCIENCE - II	3		2	25	75	100
		TOTAL	25	5	24	305	495	700


S.No.	COURSE_CODE	TITLE OF THE COURSE	Hrs./W		CREDIT POINTS	MAX.MARKS		
			Lect.	Lab.		CIA	ESE	TOTAL
SEMESTER - III								
1	21M3UFTA03	TAMIL - III	5		3	25	75	100
2	21M3UCEN03	COMMUNICATIVE ENGLISH - III	5		3	25	75	100
3	21M3UPHC03	OPTICS AND SPECTROSCOPY	6		5	25	75	100
4	21M4UPHP02	PRACTICAL : PHYSICS - II		3				
5	21M3UCHA01	ALLIED CHEMISTRY - I	5		4	25	75	100
6	21M3UCHAP1	PRACTICAL : ALLIED CHEMISTRY - I		2				
7	21M3UPHS01	CAREER COMPETENCY SKILLS	2		2	25	75	100
8	21M3UELNO1	NMEC - I	2		2	25	75	100
		TOTAL	25	5	19	150	450	600
SEMESTER - IV								
1	21M4UFTA04	TAMIL - IV	5		3	25	75	100
2	21M4UCEN04	COMMUNICATIVE ENGLISH - IV	5		3	25	75	100
3	21M4UPHC04	THERMAL AND STATISTICAL PHYSICS	6		5	25	75	100
4	21M4UPHP02	PRACTICAL : PHYSICS - II		3	3	40	60	100
5	21M4UCHA02	ALLIED CHEMISTRY - II	5		4	25	75	100
6	21M4UCHAP1	PRACTICAL : ALLIED CHEMISTRY - I		2	2	40	60	100
7	21M4UPHS02	MICROPROCESSOR AND ITS APPLICATIONS	2		2	25	75	100
8	21M4UELNO2	NMEC - II	2		2	25	75	100
		TOTAL	25	5	24	230	570	800

S.No.	COURSE_CODE	TITLE OF THE COURSE	Hrs./W		CREDIT POINTS	MAX.MARKS		
			Lect.	Lab.		CIA	ESE	TOTAL
SEMESTER - V								
1	21M5UPHC05	ELECTRICITY AND MAGNETISM	6		5	25	75	100
2	21M5UPHC06	ATOMIC AND MOLECULAR PHYSICS	6		5	25	75	100
3	21M5UPHE01	ELECTIVE - I	5		5	25	75	100
4	21M5UPHE02	ELECTIVE - II	5		5	25	75	100
5	21M6UPHP03	PRACTICAL : PHYSICS - III		3				
6	21M6UPHP04	PRACTICAL : PHYSICS - IV		3				
7	21M5UPHS03	SBEC - III	2		2	25	75	100
		TOTAL	24	6	22	125	375	500
SEMESTER - VI								
1	21M6UPHC07	NUCLEAR PHYSICS	6		5	25	75	100
2	21M6UPHC08	QUANTUM MECHANICS AND RELATIVITY	6		5	25	75	100
3	21M6UPHE03	ELECTIVE - III	5		5	25	75	100
4	21M6UPHE04	ELECTIVE - IV	5		4	25	75	100
5	21M6UPHP03	PRACTICAL : PHYSICS - III		3	3	40	60	100
6	21M6UPHP04	PRACTICAL : PHYSICS - IV		3	3	40	60	100
7	21M6UPHPR1	PROJECT WORK			2	40	60	100
8	21M6UPHOE1	PHYSICS FOR COMPETITIVE EXAM			2	100		
9	21M6UPHS04	SBEC - IV	2		2	25	75	100
10	21M6UEXA01	EXTENSION ACTIVITY			1	100		
		TOTAL	24	6	32	445	555	800

	OVERALL TOTAL	148	32	140	1480	2820	3900
21M6UPHEC1	MOOC Courses offered in SWAYAM / NPTEL	-	-	2	-	-	-


Dr. M. REVATHI M.Sc.,B.Ed.,M.Phil.,Ph.D.,
Head Department of Physics
Muthayammal College of Arts and Science
Rasipuram - 637 408.
Namakkal (DI) Tamilnadu.




PRINCIPAL
MUTHAYAMMAL COLLEGE OF ARTS AND SCIENCE
(AUTONOMOUS)
RASIPURAM - 637 408,
NAMAKKAL DISTRICT

UG- REGULATION

1. Internal Examination Marks - Theory

Components	Marks
CIA I & II	15
Attendance	5
Assignment	5
Total	25

Attendance Percentage	Marks
96 % to 100%	5
91% to 95%	4
86% to 90%	3
81% to 85%	2
75% to 80%	1
Below 75%	0

2. QUESTION PAPER PATTERN FOR CIA I, II AND ESE (3 HOURS) MAXIMUM: 75 Marks

SECTION - A (10 Marks) (Objective Type)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (10 x 1 = 10 marks)

SECTION - B (10 Marks) (Short Answer)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 2 = 10 marks)

SECTION - C (25 Marks) (Either or Type)

Answer any FIVE questions

ALL Questions Carry EQUAL Marks

Either or Type. (5 x 5 = 25 marks)

SECTION - D (30 Marks) (Analytical Type)

Answer any THREE Questions out of FIVE questions

ALL Questions Carry EQUAL Marks (3 x 10 = 30 marks)

(Syllabus for CIA-I 2.5 Unit , Syllabus for CIA-II All 5 Unit)

2 a) Components for Practical CIA.

Components	Marks
CIA - I	15
CIA - II	15
Observation Note	5
Attendance	5
Total	40

2. b) Components for Practical ESE.

Components	Marks
Completion of Experiments	50
Record	5
Viva	5
Total	60

3. Guidelines for Value Education Yoga and Environmental Studies (Part IV)

- The Course Value Education Yoga is to be treated as 100% CIA course which is offered in I Semester for I year UG students.
- The Course Environmental Studies is to be treated as 100% CIA course which is offered in II Semester for I year UG students.
- Total Marks for the Course=100

Components	Marks
Two Tests (2 x 30)	60
Field visit and report (10 + 10)	20
Two assignments (2 x 10)	20
Total	100

The passing minimum for this course is 40%

- In case, the candidate fails to secure 40% passing minimum, he / she may have to reappear for the same in the subsequent odd/even semesters.

4. Guidelines for Extension Activity (Part V)

- At least two activities should be conducted within semester consisting of two days each.
- The activities may be Educating Rural Children, Unemployed Graduates, Self Help Group etc.

The marks may be awarded as follows

No of Activities	Marks
2 x 50 (Each Activity for two days)	100

5. Internship/ Industrial Training, Mini Project and Major Project Work

Internship /Industrial Training		Mini Project	Major Project Work	
Components	Marks	Marks	Components	Marks
CIA**			CIA	
Work Diary	25	-	a) Attendance	10 Marks
Report	50	50	b) Review /	30 Marks
Viva -voce	25	50	Work	
Examination			Diary**	
Total	100	100	ESE**	
			a) Final	40 Marks
			Report	
			b) Viva-voce	20 Marks
			Total	100

** Review is for Individual Project and Work Diary is for Group Projects (Group consisting of minimum 3 and maximum 5)

**Evaluation of report and conduct of viva voce will be done jointly by Internal and External Examiners

6. Guidelines for Competitive Exams- Online Mode (Part III)- Online Exam 3 hours

Components	Marks
100 Objective Type Questions 100*1=100 Marks	100

Objective type Questions from Question Bank.

- The passing minimum for this paper is 40%
- In case, the candidate fails to secure 40% passing minimum, he / she may have to reappear for the same in the subsequent semesters.

4. Guidelines for Extension Activity (Part V)

- At least two activities should be conducted within semester consisting of two days each.
- The activities may be Educating Rural Children, Unemployed Graduates, Self Help Group etc.

The marks may be awarded as follows

No of Activities	Marks
2 x 50 (Each Activity for two days)	100

5. Internship/ Industrial Training, Mini Project and Major Project Work

Internship /Industrial Training		Mini Project	Major Project Work	
Components	Marks	Marks	Components	Marks
CIA* ²			CIA	
Work Diary	25	-	a) Attendance	10 Marks
Report	50	50	b) Review /	30 Marks
Viva -voce	25	50	Work	
Examination			Diary* ¹	
Total	100	100		40
			ESE* ²	
			a) Final	40 Marks
			Report	
			b) Viva-voce	20 Marks
				60
			Total	100

*¹ Review is for Individual Project and Work Diary is for Group Projects (Group consisting of minimum 3 and maximum 5)

*²Evaluation of report and conduct of viva voce will be done jointly by Internal and External Examiners

6. Guidelines for Competitive Exams- Online Mode (Part III)- Online Exam 3 hours

Components	Marks
100 Objective Type Questions 100*1=100 Marks	100

Objective type Questions from Question Bank.

- The passing minimum for this paper is 40%
- In case, the candidate fails to secure 40% passing minimum, he / she may have to reappear for the same in the subsequent semesters.

B. Sc-Physics Syllabus LOCF-CBCS with effect from 2021-2022 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M1UPHC01	PROPERTIES OF MATTER AND ACOUSTICS	DSC THEORY - I	I	5	4	1	-	5
Objective	To impart the basic concepts of properties of matter to make the students realize the concepts in day-to-day life. To enable the students to understand waves and oscillations to make them appreciate the flavor of physics in sound.							
Unit	Course Content					Knowledge Levels	Sessions	
I	ELASTICITY: Bending of beams- Expression for bending moment -Young's modulus - theory and experiment (uniform and non-uniform bending) - using pin and microscope method- I - section Girders Cantilever-Depression of the loaded end of a Cantilever - experimental determination scale and telescope method - Torsion of a body - expression for a couple per unit twist - work done in twisting a wire - determination of rigidity modulus - Static torsion method with scale and telescope -Torsional pendulum - rigidity modulus and moment of inertia. (L-9,T-3 Hours)					K1-K2	12	
II	VISCOSITY: Definition of Coefficient of viscosity with unit and dimension -Streamline and turbulent flow - expression for critical velocity-Poiseuille's formula for the coefficient of viscosity and its correction- determination of coefficient of viscosity by capillary flow method (Poiseuille's method) - comparison of viscosities by Ostwald's viscometer - Variations of viscosity of a liquid with temperature - lubrication- applications of viscosity. (L-9,T-3 Hours)					K2-k3	12	
III	SURFACE TENSION : Definition of surface tension with unit and dimension-Molecular theory - Surface energy - formation of drops- the angle of contact - excess of pressure inside and over curved surfaces- application to cylindrical and spherical drops and bubbles - Experimental determination of surface tension (Jaeger's method) - drop weight method of determining					K2-k3	12	

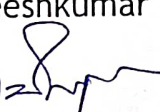
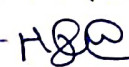
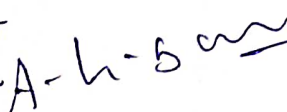
	surface tension and interfacial surface tension - determination surface tension by Quincke's method - a variation of surface tension with temperature. (L-9,T-3 Hours)		
IV	WAVES AND OSCILLATIONS: Simple harmonic motion - Free, Damped, Forced vibrations and Resonance - Sharpness of resonance Phase of resonance - Quality factor- Examples of forced and resonant vibration - Fourier's Theorem - Application to saw tooth wave and square wave - Intensity & loudness of sound - Decibels - Intensity levels - Noise pollution. (L-9,T-3 Hours)	K2-k3	12
V	ACOUSTICS & ULTRASONICS: Acoustics: Musical sound - characteristics of musical sound and noise - reverberation and time of reverberation -derivation of Sabine's formula -determination of absorption coefficient - Acoustic aspects of halls and auditoria. Ultrasonic: Production - Piezoelectric method - Magnetostriction method - detection methods - properties - applications. (L-9,T-3 Hours)	K1-k2	12
Course Outcome	CO1: Define the behavior and properties of solids and fluids.	K1	
	CO2: Students understand to describe knowledge about viscosity and lubrication.	K2	
	CO3: Execute the value of 'g' at various places.	K3	
	CO4: Compare Poisson ratio for different materials.	K4	
	CO5: Evaluate simple experiments related to mechanics and properties of matter.	K5	
Learning Resources			
Text Books	1. D.S. Mathur, Elements of properties of matter, S.Chand & Company Ltd., New Delhi (2010). 2. R.Murugesan, Properties of matter and acoustics, S. Chand & Co, New Delhi (2012) 3. Brij Lal and N. Subrahmanyam, Properties of matter, Eurasia Publishing House Limited (2005) 4. N. Subrahmanyam and Brij Lal, A Text Book of Sound, Vikas Publication House Pvt Ltd, New Delhi (1999).		

Reference Books	<ol style="list-style-type: none"> 1. Richard P. Feynman, Lectures on Physics. Vol. I & II, The New Millennium Edition (2012) 2. David Halliday and Robert Resnick, Fundamentals of Physics, Wiley Plus, (2013) 3. B.H. Flowers and E. Mendoza, Properties of Matter, Wiley Plus, 1991. 4. H.R. Gulati, Fundamentals of General properties of matter, S. Chand 2012. 5. Hugh D. Young and Roger A. Freedman, University Physics with Modern Physics, Sears & Zemansky's 14th Edition (2015)
Website Link	<ol style="list-style-type: none"> 1. https://physics.info/elasticity/ 2. https://silver.neep.wisc.edu/~lakes/PoissonIntro.html 3. https://www.insula.com.au/physics/1279/L7.html 4. https://schools.aglasem.com/46834 5. https://schools.aglasem.com/47259 6. https://opentextbc.ca/physicstestbook2/chapter/elasticity-stress-and-strain/ 7. https://www.lehman.edu/faculty/anchordoqui/chapter21.pdf

CO Mapping

CO NUMBER	PO1	PO2	PO3	PO4	PO5	PS01	PS02	PS03	PS04	PS05
CO1	S	S	M	S	S	S	M	S	S	S
CO2	S	M	S	S	S	S	M	M	S	S
CO3	S	M	M	M	S	S	M	S	S	S
CO4	S	S	S	M	S	S	M	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S
Level of Correlation between CO and PO	L-LOW		M-MEDIUM		S-STRONG					

Tutorial Schedule	1. Estimate of gravitational potential due to various objects at a point outside, inside and at the centre of the objects 2. Estimate the Poisson's ratio of a rubber tube 3. Evaluate the surface energy of a soap bubble
Teaching and Learning Methods	Chalk and talk method Power Point Presentation
Assessment Methods	Assignment, unit test conducting, model test conducting, Experimentally demonstrate

Designed By	Verified By	Approved By
V. Satheeshkumar For R. A. 	DR. M. REVATHI 	A. K. S. 

B. Sc-Physics Syllabus LOCF-CBCS with effect from 2021-2022 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M2UPHC02	MECHANICS	DSC THEORY - II	II	5	4	1	-	5
Objective	To know the fundamentals of projectile motion, the centre of gravity, SHM, Hydrostatics and Dynamics of rigid bodies and to provide the basis of the classical approach of Lagrangian Mechanics							
Unit	Course Content					Knowledge Levels	Sessions	
I	PROJECTILE: Definition of Range, Time of flight and Angle of projection - Range up and down an inclined plane maximum range - two directions of projections for a given velocity and range. IMPACT: Laws of impact - coefficient of restitution - the impact of a smooth sphere on a fixed smooth plane - Direct impact between two smooth spheres - Loss of kinetic energy indirect impact - velocity change in oblique impact between two smooth spheres-Loss of kinetic energy in an oblique impact. (L-9,T-3 Hours)					K1-K3	12	
II	CENTRE OF GRAVITY: Definition - Centre of gravity of a solid cone, Solid hemisphere, hollow hemisphere and a tetrahedron - Centre of Buoyancy. FRICTION: Introduction - Static, Dynamic, Rolling and Limiting Friction - Laws of friction - the angle of friction - resultant reaction and cone of friction - equilibrium of a body on an inclined plane under the action of a force. (L-9,T-3 Hours)					K1-K3	12	
III	SIMPLE HARMONIC MOTION: Composition of two SHM's of same period along a straight line and at the right angles to each other -Lissajou's figures - Experimental methods for obtaining Lissajou's figures - Applications. RIGID BODY DYNAMICS: Compound pendulum - Centers of oscillation and suspension - determination of g and k - Bifilar pendulum - Parallel and non-parallel threads - Centre of mass - Conservation of linear and angular momentum - Variable mass Rocket propulsion.					K1-K4	12	

	(L-9,T-3 Hours)		
IV	<p>HYDROSTATICS: Concurrent forces - Parallel forces -couple - static equilibrium of rigid body - the centre of pressure of rectangular and triangular lamina - Metacentric height and its determination.</p> <p>HYDRODYNAMICS: Equation of continuity of flow - Euler's equation of unidirectional flow - Torricelli's theorem - Bernoulli's theorem and its applications - Venturimeter.</p> <p>(L-9,T-3 Hours)</p>	K1-K4	12
V	<p>LAGRANGIAN DYNAMICS: Mechanics of system of particles - Conservation of energy - Constraints of motion Generalized coordinates and the transformation equation - simple illustration for the transformation equation - Configuration space - the principle of virtual work - D'Alembert's principle - Lagrange's formulation for conservation theorems -Hamiltonian-Hamilton,s Equation.</p> <p>(L-9,T-3 Hours)</p>	K1-K3	12
Course Outcome	CO1: Recall the fundamentals of projectile motion and Impact	K1	
	CO2: Describe the centre of gravity and Friction.	K2	
	CO3: Execute the Simple Harmonic Motion and basics of Rigid body.	K3	
	CO4:Analyze the concepts of Hydrostatics and Hydrodynamics	K4	
	CO5: Appraise the basis of the classical approach of Lagrangian Mechanics.	K5	
Learning Resources			
Text Books	<p>1. R.Murugeshan, Mechanics and Mathematical Physics, S.Chand & Company Ltd, 2008, 3rd Edn.</p> <p>2.M.Narayanamurthi and N.Nagarathinam Dynamics, The National Publishing Company 2008,8rd Edn.</p>		
Reference Books	<p>1. Herbert Goldstein Classical Mechanics Addition Wesley Publications, 2005.</p> <p>2. D.S. Mathur, Mechanics, S.Chand& Company Ltd., 2000, 3rd Edn.</p> <p>3. The Feynman Lectures on Physics, Volumes 1 & 1, Narosa Publishing House, 1998</p> <p>4. Murray R. Spiegel, Theoretical Mechanics, Schaum's Outline Series, McGraw-Hill Book Co,SI(Metric) Edition,1987</p> <p>5.Pande, H. D., Singh, S.N., and Lal, R.N., "A Text Book of Mechanics" First Edition, Dominant Publishers Pvt. Ltd., New Delhi, 2014.</p>		

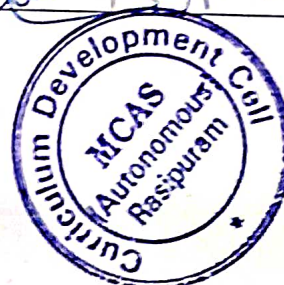
Website Link	1. https://www.lehman.edu/faculty/anchordoqui/chapter21 2. https://www.real-world-physics-problems.com/example-mechanics-problems.html 3. https://www.uou.ac.in/sites/default/files/slm/BSCPH-101.pdf 4. http://www.scottishschools.info/Websites/SchSecValeOfLeven/UserFiles/file/Learning/Physics/Higher/Unit%201%20-%20Outcomes%20&%20Summary%20Notes.pdf 5. http://www.physics.usyd.edu.au/super/physics_tut/worksheets/regPofM.pdf
--------------	--

CO Mapping

CO NUMBER	PO1	PO2	PO3	PO4	PO5	PS01	PS02	PS03	PS04	PS05
CO1	S	M	M	M	M	S	S	M	L	S
CO2	S	L	M	L	M	M	S	S	S	S
CO3	M	M	L	S	M	S	S	S	S	M
CO4	S	M	M	S	M	S	S	S	M	S
CO5	M	L	M	M	M	M	M	M	M	M
Level of Correlation between CO and PO	L-LOW		M-MEDIUM		S-STRONG					

Tutorial Schedule	Explain the terms gravitational potential and Gravitational field and Estimate of the Moment of Inertia of different objects about different axes.
Teaching and Learning Methods	Chalk and Talk method, PowerPoint presentation, Group Discussion.
Assessment Methods	Assignment, unit test, model test, Continuous assessment test, Internal exam, Pre semester exam

Designed By	Verified By	Approved By
Dr.M.Meenachi <i>H. Meenachi</i>	Dr.M.Revathi <i>H. Revathi</i>	<i>A. L. Sanyal</i>



B. Sc-Physics Syllabus LOCF-CBCS with effect from 2021-2022 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M2UPHP01	PRACTICAL: PHYSICS - I	DSC PRACTICAL - I	1	3	-	-	3	3
Objective	To understand and apply the principle of physics by doing related experiments in properties of Matter, Optics, Electricity and Basic Electronics.							
S.No.	List of Experiments (Any 16 Experiments)	Knowledge Levels	Sessions					
1	Compound Pendulum-Determination of g and k.	K2	3					
2	Young's modulus (q) - Non-uniform bending - pin and microscope- unknown mass.	K2	3					
3	Young's modulus (q) - Uniform bending - Optic lever method-scale and telescope - unknown mass.	K2	3					
4	Rigidity modulus - Static torsion apparatus - unknown mass.	K3	3					
5	Coefficient of Viscosity - graduated burette and radius by mercury pellet method.	K3	3					
6	Surface Tension- Capillary rise method.	K3	3					
7	Sonometer - frequency of a tuning fork and- R.D of solid and liquid.	K4	3					
8	Specific heat capacity of solids by the method of mixtures-Half time correction	K4	3					
9	Coefficient of Thermal conductivity of bad conductor-Lees disc method.	K2	3					
10	Spectrometer-Refractive Index of a solid prism.	K3	3					
11	Spectrometer-Grating - Normal incidence - Determination of wavelength of mercury spectral lines.	K3	3					
12	Potentiometer-low range voltmeter calibration.	K2	3					
13	Potentiometer-low range ammeter calibration.	K4	3					
14	Post Office Box- Energy band-gap of a thermistor.	K4	3					
15	Moment of a magnet - deflection magnetometer - TANC position.	K3	3					
16	Moment of magnet- circular coil - Deflection magnetometer.	K3	3					
17	Low range power pack.	K3	3					

18	Junction and Zener diode characteristics.	K4	3
19	Logic gates using IC's - truth table verification (AND, OR, NOT, NAND, NOR, EXOR)	K2	3
20	Transistor characteristics -CE configuration.	K3	3
Course Outcome	CO1: Students recall the basic experiments related to mechanics and also get familiar with various measuring instruments would learn the importance of accuracy of measurements.	K1	
	CO2: Students describe practical knowledge about electricity and magnetism and measurements such as: Resistance, Voltage, current etc.	K2	
	CO3: Execute the practical knowledge of wave motion doing experiments: Tuning fork, electric vibrations.	K3	
	CO4: students to analyze experimental learning methods.	K4	
	CO5: Support the laws and concepts of Physics.	K5	
Learning Resources			
Text Books	1.S.L. Gupta and V.Kumar - Practical Physics - Pragati Prakashan - 25th Edition (2002) 2. M.N.Srinivasan, S. Balasubramanian, R. Ranganathan, A textbook of PRACTICAL PHYSICS, Sultan Chand and sons educational publishers, New Delhi. Edition 2017		
Reference Books	1. M.K Subramanian, S.Padmanathan, S.Somasundaram, B.Sc Practical Physics, Apsara Publications, Trichy, revised edition (2020). 2. C.C.Ourseph, C.Rangarajan, R. Balakrishnan - A Text Book of Practical Physics - S.Viswanathan Publisher - Part II (1996)		
Website Link	1. https://bscphysicspractical.blogspot.com/2019/12/bsc-first-year-practical-physics.html 2. https://www.lnmiit.ac.in/Department/Physics/uploaded_files/lab-manual.pdf 3. https://youtu.be/m8yAALCE0LE 4. https://www.youtube.com/watch?v=NKHftUT-vaM 5. https://www.youtube.com/watch?v=4WQvuDadZFM 7. https://youtu.be/w23IkGUChag		

CO Mapping

CO NUMBER	PO1	PO2	PO3	PO4	PO5	PS01	PS02	PS03	PS04	PS05
CO1	S	M	S	M	S	S	S	M	S	S
CO2	S	S	S	M	S	S	S	S	S	S
CO3	S	M	S	M	S	S	S	M	S	S
CO4	S	M	S	M	S	S	S	S	S	S
CO5	S	M	S	M	S	S	S	S	S	S
Level of Correlation between CO and PO	L-LOW		M-MEDIUM		S-STRONG					

Tutorial Schedule	
Teaching and Learning Methods	Demonstration and practical Sessions
Assessment Methods	To conduct Model Practical

Designed By	Verified By	Approved By
Mr.V.Satheeskumar	Dr. M. REVATHI	A. h. Suresh

Sathy 97.

Revathi



B. Sc-Physics Syllabus LOCF-CBCS with effect from 2021-2022 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UPHC03	OPTICS AND SPECTROSCOPY	DSC THEORY- III	III	6	4	2	-	5
Objective	The students should acquire knowledge basic properties of light. They should be familiar with the behavior of light in different medium. To Understand the gain knowledge towards geometrical and physical optics.							
Unit	Course Content						Knowledge Levels	Sessions
I	Geometrical Optics: Geometrical Optics - Introduction (Convex lens - Principal Focus and Focal Planes - Cardinal Points) - Aberration in lenses - Spherical aberration in Lenses - Methods of minimizing spherical aberration - Condition for Minimum Spherical Aberration of two thin lenses separated by a distance - Definition of coma, astigmatism and curvature of field, distortion - a chromatic aberration in a lens - achromatic combination of lenses - Condition for achromatism of two thin lenses placed in a contact - Condition for achromatism of two thin lenses separated by a finite distance - Eye piece - Ramsdens Eyepiece - Huygens Eyepiece - Comparison of two eyepieces. (L-9 , T-3 Hours)						K1-K3	12
II	Interference and Interferometer: The principle of superposition - coherent sources - types of coherent sources- Double slit interference (theory of interference fringes) - Fresnel's Biprism - wedge shaped films (Air Wedge) - Theory - Experiment to measure the diameter of a thin wire - Testing a surface for planeness - Newtons Rings - Determination of Wavelength of Sodium light by Newtons rings - - Michelson interferometer - Types of Fringes and applications.(Determination of wavelength of monochromatic light - difference in wavelength between two neighbouring spectral lines) - Feby - perot interferometer. (L-9 , T-3 Hours)						K2-K4	12

III	Diffraction and Optical Instruments: Diffraction - Fresnel diffraction - Fraunhofer diffraction - Rectilinear propagation of light - Zone plate - Comparison of zone plate with convex lens - Fraunhofer diffraction pattern with N slits (diffraction grating) - normal incidence - absent and overlapping spectra of a diffraction grating - Resolving power - Rayleigh criterion for resolution - Resolving power of a Telescope, Prism, Microscope and Grating. (L-9 , T-3 Hours)	K2-K4	12
IV	Polarization and Optical Activity: Polarization - Plane of polarization and vibration - Double refraction - Nicol prism as polarizer and analyzer - Huygen's theory of double refraction in uniaxial crystal - Double image polarizing prisms - Quarter wave plate - Half wave plate - Production and Detection of plane, partially, elliptically and circularly polarized lights - Babinet's Compensator. Optical activity - Specific Rotation - Laurents half shade polarimeter - Optical rotation by magnetic and electric fields. (L-9 , T-3 Hours)	K3-K5	12
V	Spectroscopy: Region of Electromagnetic Spectrum - Energy states of the atom - Wave and Particle properties of EMR - Interaction of low energy electromagnetic radiation with matter - UV and IR Spectroscopy - Basic Principle, Instrumentation and applications - Laser - Principle of laser(Absorption, Transmission, Stimulated absorption, Spontaneous and Stimulated emission) - Population Inversion - Optical pumping - Ruby Laser - He-Ne laser - Carbon dioxide laser - Semiconductor laser - Applications - Holography - Recording and reconstruction - Application of holography. (L-9 , T-3 Hours)	K1-K3	12
Course Outcome	CO1: Remember the behavior of light on passing through lens, prism, thin film and grating.	K1	
	CO2: Understand the phenomena of light like Interference, diffraction, polarization and population inversion.	K2	
	CO3: To apply the concepts of diffraction and also the resolving power of different optical instruments.	K3	
	CO4: Analyze and apply the concepts of dispersive power, refractive index, resolving power, double refraction, specific rotation and optical pumping for different material sized light.	K4	
	CO5: The students are evaluating the perceptions will help to understand the spectroscopic techniques and learn the working principle of Lasers, holography and their applications	K5	
Learning Resources			
Text Books	1. R Murugesan, Optics and Spectroscopy, S.Chand Publishing, 5th Edition (2013) 2. Aruldas, Molecular structure and spectroscopy, 2nd ed. EEE., (2007)		

	3. Banwell C.N. &McCagh, Fundamentals of Molecular Spectroscopy, Tata McGraw Hill Publishing Co. Ltd. 4th edition, (1994) 4. R.Murugesan and Kiruthigasivaprasath, Optics and Spectroscopy, S.Chand&Co, (2010)
Reference Books	1. Subrahmanyam and Brijlal, A textbook of OPTICS, S.Chand& Co., (2001) 2. Ajoy Kumar Ghatak, K.Thyagarajan, Optoelectronics, Cambridge University Press (1989)
Website Link	1. https://www.youtube.com/watch?v=ML7HcZo6laE 2. https://www.khanacademy.org/science/physics/light-waves/introduction-to-lightwaves/v/polarization-of-light-linear-and-circular 3. https://nptel.ac.in/courses/104/104/104104085/

CO-PO Mapping

CO NUMBER	PO1	PO2	PO3	PO4	PO5	PS01	PS02	PSO3	PSO4	PSO5
CO1	M	S	S	M	M	M	L	M	M	S
CO2	M	S	S	M	M	S	S	M	L	S
CO3	S	S	M	M	M	S	M	S	M	M
CO4	M	S	S	M	S	M	M	S	L	S
CO5	S	M	L	S	S	S	M	S	S	S
Level of Correlation between CO and PO	L-LOW		M-MEDIUM		S-STRONG					

Tutorial Schedule	1. Assignments 2. Group discussion and Create resume for various professions
Teaching and Learning Methods	chalk and talk
Assesment Methods	CIA, ESE, Pre-Semester Examination

Designed By	Verified By	Approved By
M.SARANYA <i>M. Saranya</i>	DR. M. REVATHI <i>M. Revathi</i>	<i>A. L. Sankar</i>



B. Sc-Physics Syllabus LOCF-CBCS with effect from 2021-2022 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UPHC04	THERMAL AND STATISTICAL PHYSICS	DSC THEORY - IV	IV	6	4	2	-	5
Objective	The objective of this course is to develop a working knowledge of the laws and methods of thermodynamics and elementary statistical mechanics and to use this knowledge to explore various applications.							
Unit	Course Content					Knowledge Levels	Sessions	
I	THERMOMETRY AND CALORIMETRY: Concept of heat and temperature - types of thermometers - Centigrade, Fahrenheit and Rankine scales - relation between Centigrade, Fahrenheit and Rankine scales - liquid thermometers - Platinum resistance thermometer - Calendar and Griffith's bridge - Seebeck effect - Peltier effect - Peltier coefficient - Thomson effect - Thomson coefficient. Calorimetry: Definitions - Regnault's method of mixtures - specific heat capacity of liquids - Specific heat capacity of gases - C_p and C_v - C_p by Joly's differential steam calorimeter method - C_v by Regnault's method. (L-9,T-3 Hours)					K1-K3	12	
II	THERMODYNAMICS I : Thermodynamic variables and equation of state - limitations - Zeroth law of thermodynamics - First law of thermodynamics - Heat engines - Carnot's theorem - Otto engine (Petrol engine) - Diesel engine - Reversible and irreversible process - Second law of thermodynamics - Entropy - Change in entropy in reversible and irreversible process - Temperature - entropy diagram (T.S) - Maxwell Thermodynamical relations. (L-9,T-3 Hours)					K1-K3	12	
	THERMODYNAMICS II : Joule - Thomson's effect - Porous plug experiment - Theory					K2-K3	12	

III	<p>of Porous Plug experiment - Definition of temperature of inversion - Liquefaction of gases - Liquefaction of Air - Linde's process - Liquefaction of Helium - Liquefaction of Hydrogen - Adiabatic demagnetization - Practical applications of low temperature - Refrigerator - Electrolux refrigerator (Vapour absorption machine).</p> <p>(L-9,T-3 Hours)</p>		
IV	<p>TRANSMISSION OF HEAT: Thermal Conductivity -definition - Coefficient of thermal conductivity - Good and Bad Conductor - thermal conductivity of a bad conductor by Lee's disc method - Blackbody radiation - definition - Wien's Displacement law - Rayleigh Jean's law - Planck's law - Stefan's law and experimental verification of Stefan's law - Solar constant - temperature of the sun -Angstrom's Pyrheliometer.</p> <p>(L-9,T-3 Hours)</p>	K2 - K4	12
V	<p>STATISTICAL PHYSICS : Position space - momentum space - phase space - mu-space - gamma space - Microstate and Macrostate - Thermodynamic probability - fundamental postulates of statistical mechanics - Maxwell - Boltzmann distribution law - Application of Maxwell Boltzmann distribution law to an ideal gas - Bose Einstein Distribution law - Application of Bose Einstein distribution law - Fermi-Dirac distribution law - F.D energy distribution function -Application of Fermi-Dirac distribution law .</p> <p>(L-9,T-3 Hours)</p>	K3 - K5	12
Course Outcome	CO1: Understand the nature of calorimetry by specific heat of solids and law of thermodynamics and entropy.	K1	
	CO2: Student can understand the efficiency of idealized engines such as the Carnot cycle, the otto cycle, and the Diesel cycle.	K2	
	CO3: Understanding the low temperature physics.	K3	
	CO4: Analyses thermal conductivity and black body radiation.	K4	
	CO5: Appraise account of micro and macro states in thermodynamically potentials and ensembles.	K5	
Learning Resources			

Text Books	<ol style="list-style-type: none"> 1. R.Murugeshan and Kiruthiga Sivaprasad ,Thermal Physics,S.Chand & Co.,New Delhi. 2021. 2. Brijlal and Subrahmanyam, Heat and Thermodynamics, S.Chand & Co, 2002. 3. Brijlal, Subrahmanyam and Hemne, Heat thermodynamics and Statistical physics, S. Chand & Co, 2014. 4. S.K.Roy, Thermal Physics and Statistical Mechanics, New Age International (P) Limited Publishers, New Delhi. 5. Gupta, A. B. and Roy, H. P., "Thermal physics", First Edition, Books and Allied Publishers Pvt. Ltd., Kolkata, 2011.
Reference Books	<ol style="list-style-type: none"> 1. D.S. Mathur, Heat and thermodynamics, S.Chand & Co., 2000. 2. S.S.Singhal,J.P.Agarwal, Sathyaprakash, Heat thermodynamics and statistical Physics, Pragati Prakashan, 2001.
Website Link	<ol style="list-style-type: none"> 1.https://www.vsc.science.runl.html. 2.https://www.physics.weber.edu.

CO Mapping

CO NUMBER	PO1	PO2	PO3	PO4	PO5	PS01	PS02	PS03	PS04	PS05
CO1	S	M	S	S	S	S	S	S	S	S
CO2	S	M	S	S	S	S	S	M	S	S
CO3	S	S	M	S	S	S	S	M	S	S
CO4	S	M	M	M	M	S	M	M	M	S
CO5	M	S	M	S	S	S	M	L	M	M
Level of Correlation between CO and PO	L-LOW		M-MEDIUM		S-STRONG					

Tutorial Schedule	
Teaching and Learning Methods	Chalk and talk method Power Point Presentation
Assessment Methods	Assignments , Unit test conducting, Model test conducting

Designed By	Verified By	Approved By
M.SARANYA M. <i>[Signature]</i>	Dr.M.REVATHI M. <i>[Signature]</i>	A. <i>[Signature]</i>



B. Sc-Physics Syllabus LOCF-CBCS with effect from 2021-2022 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UPHP02	PRACTICAL : PHYSICS - II	DSC PRACTICAL - II	III	3	-	-	3	3
Objective	Students are understand and apply the principle of physics by doing related experiments in properties of matter, optics, electricity, electromagnetism and basic electronics.							
S.No.	List of Experiments (Any 16 Experiments)					Knowledge Levels	Sessions	
1	Young's modulus - Cantilever - depression - (Static method) - (Scale and telescope)					K3	3	
2	Young's modulus - Cantilever oscillations - (Dynamic method)					K4	3	
3	Rigidity modulus - Static torsion					K2	3	
4	Specific heat capacity of a liquid by cooling-verification of Newton's law					K3	3	
5	Air wedge - Thickness of a wire and its insulation.					K3	3	
6	M and BH - deflection magnetometer Tan A and TAN B position					K4	3	
7	Field along the axis of a coil - deflection magnetometer - determination of BH.					K3	3	
8	Potentiometer - Ammeter calibration					K2	3	
9	Sonometer-Frequency of AC					K2	3	
10	Newton's Ring-Sodium lamp (Microscope)					K3	3	
11	Spectrometer-i-d curve					K5	3	
12	Carey Foster Bridge					K4	3	
13	Spectrometer-Grating by minimum Deviation- Determination of wavelength of mercury lamp.					K3	3	
14	Thermal Conductivity of a bad conductor - Lee's disc method					K3	3	

15	Bridge rectifier	K4	3
16	BG - Comparison of Capacities	K5	3
17	Potentiometer & Calibration of low range voltmeter	K3	3
18	Zener diode - Voltage regulator using four diodes and percentage of regulation	K4	3
19	Verification of De Morgan's theorem	K4	3
20	NAND and NOR gates as universal building block (Construction of AND, OR & NOT)	K5	3
Course Outcome	CO1: Remember the knowledge of the potentiometer and to apply it for various experiments.	K1	
	CO2: Understand the usage of basic laws and theories to determine various properties of the materials given.	K2	
	CO3: Apply the knowledge of physical optics using spectrometer.	K3	
	CO4: Analyze the concepts of Young's Modulus of different substances.	K4	
	CO5: Evaluate the characteristics of various diodes and construct power supply.	K5	
Learning Resources			
Text Books	1.M.N. Srinivasan, S. Balasubramanian, R. Ranganathan, A textbook of PRACTICAL PHYSICS, Sultan Chand and sons educational publishers, New Delhi. Edition (2017) 2.M.K Subramanian, S.Padmanathan, S.Somasundaram, B.Sc Allied Physics Practical, Apsara Publications, Trichy, revised edition (2020)		
Reference Books	1.C.C.Ourseph, C.Rangarajan, R. Balakrishnan - A Text Book of Practical Physics - S.Viswanathan Publisher - Part II (1996) 2.S.L. Gupta and V.Kumar - Practical Physics - PragatiPrakashan - 25th Edition (2002)		
Website Link	1. https://youtu.be/m8yAALCE0LE 2. https://youtu.be/Su8TvWW-j0g 3. https://youtu.be/QueZal4Gllg 4. https://youtu.be/M-q_CqgQ1W8 5. https://youtu.be/w23lkGUCHag		

CO Mapping

CO NUMBER	PO1	PO2	PO3	PO4	PO5	PS01	PS02	PS03	PS04	PS05
C01	S	M	S	M	S	S	S	S	S	S
C02	S	S	S	M	S	S	S	S	S	S
C03	S	M	S	M	S	S	S	S	S	S
C04	S	M	S	M	S	S	S	S	S	S
C05	S	M	S	M	S	S	S	S	S	S
Level of Correlation between CO and PO	L-LOW		M-MEDIUM		S-STRONG					

Tutorial Schedule	
Teaching and Learning Methods	Demonstration and practical Sessions
Assessment Methods	To conduct Model Practical and formula test

Designed By	Verified By	Approved By
Dr.M.REVATHI M. Revathi	Dr. M. REVATHI M. Revathi	A. h. Sams



SKILL BASED ELECTIVE COURSE DETAILS
SYLLABUS - CBCS PATTERN
EFFECTIVE FROM THE ACADEMIC YEAR 2021-2022 Onwards
LIST OF SBEC COURSES

S.NO	SEM	SUB_CODE	TITLE OF THE SUBJECT
1	III	21M3UPHS01	CAREER COMPETENSY SKILLS
2	IV	21M4UPHS02	MICROPROCESSOR AND ITS APPLICATIONS
3	V	21M5UPHS03	ELECTRICAL WIRING
4	VI	21M5UPHS04	BIO-MEDICAL INSTRUMENTATIONS
5	V	21M6UPHS05	RENEWABLE ENERGY SOURCES
6	VI	21M6UPHS06	LASER AND ITS APPLICATIONS

B.Sc-Physics Syllabus LOCF-CBCS with effect from 2021-2022 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UPHS01	CAREER COMPETENCY SKILLS	SEC - I	III	2	2	0	-	2
Objective	Student gain the employability skills and to develop career competency, impart knowledge on preparing resume and group discussion to develop the personality traits and interview skills also.							
Unit I	Course Content					Knowledge Levels		Sessions
	RESUME FORMATS: Biodata – Resume – Curriculum vitae (CV) - Tips to create an effective resume – Resume format for various professions. (L-3 Hours)					K1		3
II	GROUP DISCUSSION: Group discussion – Definition – Types of group discussion – Importance – Elements of group discussion – Skills for group discussion – Preparation of group discussion. (L-3 Hours)					K2-K3		3
III	TECHNICAL APTITUDE: Basic aptitudes – Steps to prepare technical test – Critical reasoning skills – Common aptitude types -technical aptitudes for different professions (L-3 Hours)					K3		3
IV	INTERVIEW SKILLS: Types of Interviews – Best skills for an Interview – Preparation for an Interview. (L-3 Hours)					K2-K3		3
V	PERSONALITY: Four personality types – Personality traits – Body language – Dress code – Ways to improve personality. (L-3 Hours)					K3		3
Course Outcome	CO1: Obtain knowledge of resume formats.					K1		
	CO2: Know how to lead a group.					K2		

	CO3: The ability to succeed in competitive exams.	K3	
	CO4: Know how to face an interview .	K4	
	CO5: Involving students in adapting the techniques of personality development.	K5	
Learning Resources			
Text Books	1.T.S. Jain and Gupta"Interviepws and group discussions" UPKAR'S , E-Books.		
Reference Books	1. Ajai B. Kher"Group discussion"Vohra Publisher, Allahabad, India. 2. Ela Kashyap Sharma "Technical Aptitude for Interviews"PHI Learning Private Limited, Delhi,2015.		
Website Link	1. https://www.skillsyouneed.com/ps/personal-development.html 2. https://www.isdm.org.in/soft-skills-in/social-sector .		

CO-PO Mapping

CO NUMBER	PO1	PO2	PO3	PO4	PO5	PS01	PS02	PSO3	PSO4	PSO5
CO1	S	M	L	M	M	S	M	L	M	S
CO2	S	M	M	S	S	S	M	M	M	M
CO3	M	M	L	M	M	S	M	M	M	M
CO4	M	M	M	M	S	S	M	M	M	M
CO5	S	M	S	S	S	S	M	M	S	S
Level of Correlation between CO and PO	L-LOW		M-MEDIUM		S-STRONG					

Tutorial Schedule	1. Assignments 2. Group discussion 3. Create resume for various professions
Teaching and Learning Methods	chalk and talk
Assesment Methods	CIA, ESE, Pre-Semester Examination

Designed By	Verified By	Approved By
A.Mohan Dass Gandhi <i>A. Mohan Dass</i>	Dr. M. R. EVATHI <i>M.R.</i>	<i>A. h. Sams</i>



B. Sc-Physics Syllabus LOCF-CBCS with effect from 2021-2022 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UPHS02	MICROPROCESSOR AND ITS APPLICATIONS	SEC - II	IV	2	2	-	-	2
Objective	This course will provide the necessary basic concepts about the 8085 microprocessor's architecture and various functions. It will provide ideas about programming in the microprocessor.							
Unit	Course Content						Knowledge Levels	Sessions
I	ARCHITECTURE: 8085 Microprocessor – Functional Units (Accumulator, ALU, Register, Counter, Stack Pointer, Flag Register) – 8085 Architecture Block diagram – Pin configuration (Pin diagram). (L-3 hours)						K1-K3	3
II	ADDRESSING MODES: Immediate addressing – Register addressing – Direct addressing – Indirect addressing – Implied addressing. (L-3 hours)						K2-K3	3
III	INSTRUCTION SETS: Control Instructions – Logical instructions – Branching instructions – Arithmetic instructions – Data transfer instructions – Instructions format – Instruction timings and operation status. (L-3 hours)						K3-K4	3
IV	PROGRAMMING TECHNIQUES : Looping – Counting – Indexing – Counter and Time delays – Stack and Subroutines. (L-3 hours)						K4	3
V	PROGRAMMING AND APPLICATIONS: Executing a simple program – Addition – Subtraction – Multiplication and division - Ascending order – Descending order - Household devices – Industrial applications. (L-3 hours)						K5	3
Course Outcome	CO1: The student will be able to describe the general architecture and organization of 8085 microprocessors.						K1	
	CO2: Will be able to understand the various functional units and memory modes.						K2	
	CO3: Apply the Mnemonics and Opcodes in the Microprocessor.						K3	
	CO4: Analyze the instruction sets and simple programming techniques.						K4	
	CO5: Develop programming skills using the basic concepts.						K5	


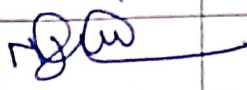
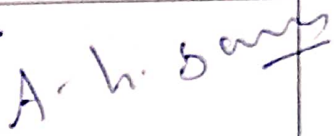
Learning Resources

Text Books	1. R. Gaonkar, Microprocessor Architecture, Programming and Application with 8085, Pogram International Publications,(2013) 2. Udayakumar and Umashankar, The 8085 Microprocessor: Architecture, Programming and Interfacing, Pearson, (2008)
Reference Books	1. D. V Hall, SSSP Rao, Microprocessors and interfacing, McGraw Hill Education, (2017) 2. C.M. Gilmore, Microprocessors Principles and Applications McGraw Hill Education, (1993)
Website Link	1. https://onlinecourses.nptel.ac.in/noc20_ee42/preview 2. https://www.javatpoint.com/microprocessor-applications

CO Mapping

CO NUMBER	PO1	PO2	PO3	PO4	PO5	PS01	PS02	PSO3	PSO4	PSO5
CO1	S	M	L	M	M	S	M	M	S	S
CO2	S	M	M	S	S	S	M	M	M	S
CO3	M	M	L	M	M	S	M	M	M	M
CO4	M	M	M	M	S	S	M	M	M	M
CO5	S	M	S	S	S	S	M	S	S	S
Level of Correlation between CO and PO	L-LOW		M-MEDIUM		S-STRONG					

Tutorial Schedule	Online seminars ,PPT, Group Discussion and Interaction
Teaching and Learning Methods	Chalk and talk lectures , virtual classroom teaching and PowerPoint Presentation
Assessment Methods	Continuous internal assessment test, pre-semester examination, Assignment, unit test, model test, end semester examination.

Designed By	Verified By	Approved By
 Dr.M.REVATHI	 Dr. M. REVATHI	



Allied Subjects for any Degree offered by the Department of UG- PHYSICS
SYLLABUS - CBCS Pattern
EFFECTIVE FROM THE ACADEMIC YEAR 2021-2022 Onwards
LIST OF ALLIED PAPERS

S.NO	SEM	SUB_CODE	TITLE OF THE SUBJECT
1	I	21M1UPHA01/21 M3UPHA01	ALLIED PHYSICS-I
2	II	21M2UPHA02/21 M4UPHA02	ALLIED PHYSICS-II
3	II	21M2UPHAP1/21 M4UPHAP1	PRACTICAL : ALLIED PHYSICS

B. Sc-Physics Syllabus LOCF-CBCS with effect from 2021-2022 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M1UPHA01/ 21M3UPHA01	ALLIED PHYSICS-I	GEC THEORY - I	I/III	5	3	2	-	4
Objective	The concepts of various properties of matter and to impart the knowledge on the basic principle of mechanics, Heat waves, Electromagnetic spectrum and fibre optics communication							
Unit	Course Content					Knowledge Levels	Sessions	
I	PROPERTIES OF MATTER: Stress - Strain - Hooke's law - Different moduli of elasticity - Young's modulus (E) - Rigidity modulus(G) - Bulk modulus(K) - Poisson's ratio - work done in linear, shearing and volume strain - Relation connecting elastic constants and Poisson's ratio - Bending of beams-bending Moment-Measurement of Young's modulus by non-uniform bending and Rigidity modulus by static torsion (Searle's apparatus) scale and telescope method. (L-9,T-3 hours)					K1-K3	12	
II	MECHANICS: Centre of gravity - General formula- centre of gravity of a solid hemisphere - hollow hemisphere- solid cone - tetrahedron - stability of floating bodies - Meta centre - metacentric height - determination of metacentric height of a ship . (L-9,T-3 hour)					K2	12	
III	Sound, Ultrasonics and Acoustics: Simple harmonic motion - composition of two simple harmonic motions along a straight line and at right angles to each other - Lissajou's figures and their applications. Ultrasonics production - Magnetostriction oscillator-properties- applications- Acoustics of buildings - Reverberation and Reverberation time - Sabine's formula - Factors affecting the acoustics of buildings. (L-9,T-3 hours)					K3	12	
IV	Thermal Physics: Newton's law of cooling - verification of Newton's law of cooling - specific heat capacity of a liquid by cooling - Bomb calorimeter - Conduction - coefficient of thermal conductivity - good and bad conductors - Lee's disc method for bad conductors - Stefan's law of radiation - Solar constant -					K3	12	

	Angstrom's Pyrheliometer - Temperature of the Sun. (L-9,T-3 hours)		
V	Optics and Spectroscopy : Electromagnetic spectrum - spectral response to human eye - UV and IR Spectroscopy - Raman Effect - Explanation on the basis of quantum theory - Experimental arrangement - application of Raman Effect - Fibre Optic Communication- Introduction- optical fibre - numerical aperture - coherent bundle - fibre optic communication systems and their advantages. (L-9,T-3 hours)	K1-K3	12
Course Outcome	CO1: Study the elastic behavior and working of torsional pendulum and analyze the expression for young's modulus	K1	
	CO2: Understand the definition of gravity in hemisphere, hollow hemisphere .	K2	
	CO3: Apply the production of ultrasonics by different methods.	K3	
	CO4: Analyze the nature of calorimetry by specific heat of solids and law of thermodynamics and thermal conductivity.	K4	
	CO5: Evaluate the theory and application of UV, IR Spectroscopy and Raman spectroscopy	K5	
Learning Resources			
Text Books	1.R. Murugesan, Properties of Matter, S. Chand and Co., New Delhi, 2004. 2.R. Murugesan, Mechanics and Mathematical Methods, S. Chand & Co., 2014. 3. Sundaravelusamy, Allied Physics Paper - I, Priya Publications, 2012.		
Reference Books	1. R. Murugesan and Kiruthiga Sivaprasath, Modern Physics, S. Chand & Co, New Delhi (2016). 2. D.S. Mathur, Elements of properties of matter and acoustics, S. Chand & Company Ltd., New Delhi (2010)		
Website Link	1. https://onlinecoursenptel.ac.in/noc22_ce103/preview 2. http://www.nptel.ac.in/courses/112104026/ 3. http://www.nptel.ac.in/courses/115106090/		

CO-PO Mapping

CO NUMBER	PO1	PO2	PO3	PO4	PO5	PS01	PS02	PS03	PSO4	PSO5
CO1	S	S	M	S	S	S	M	S	S	S
CO2	S	M	S	S	S	S	M	M	S	S

CO3	S	M	M	M	S	S	M	S	S	S
CO4	S	S	S	M	S	S	M	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S
Level of Correlation between CO and PO	L-LOW		M-MEDIUM		S-STRONG					

Tutorial Schedule	Online virtual laboratory, PPT, virtual classroom teaching, Google class room, group discussion
Teaching and Learning Methods	chalk and talk
Assesment Methods	CIA, ESE, Pre-Semester Examination

Designed By	Verified By	Approved By
R.AZHAGARASU <i>R. Azhagarasu</i>	D. M. REVATHI <i>M. Revathi</i>	<i>A. h. Sann</i>



B.Sc - Physics Syllabus LOCF-CBCS with effect from 2021-2022 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M2UPHA02 / 21M4UPHA02	ALLIED PHYSICS - II	GEC THEORY - II	II / IV	5	3	2	-	4
Objective	To impart knowledge on the basic concepts of Atomic, Nuclear and Solid State Physics, Electronics and Digital Electronics. To acquire knowledge on their applications							
Unit	Course Content						Knowledge Levels	Sessions
I	ATOMIC PHYSICS The vector atom model – spatial quantization – the spinning of an electron – quantum numbers associated with the vector atom model – coupling schemes – LS and JJ coupling – Pauli’s exclusion principle – Stern and Gerlach experiment – X-rays – production of X-rays – Continuous and characteristic X-ray spectra – Bragg’s law powder X-ray diffractometer – industrial and medical applications of X-rays. (L-9,T-3 Hours)						K1 – K3	12
II	NUCLEAR PHYSICS General properties of nuclei: Nuclear mass and binding energy – B.E/A versus A curve – nuclear spin and magnetic moment – mass, half-life and spin of neutron – semi-empirical mass formula – Nuclear models and elementary particles: nuclear reactions: cross-section – nuclear fission – liquid drop model – nuclear forces – elementary particles: classification – Quarks and leptons. (L-9,T-3 Hours)						K1 – K3	12
III	SOLID STATE PHYSICS Crystal lattice – unit cell – Primitive cell – Basis – Classification of crystals – Bravais lattice as three dimensions – Miller indices and crystal planes - crystal structure – simple cube – body-centred cube – face-centred cube – co-ordination number – atomic radius – packing factor of a simple cubic crystal. Bonding in crystals – ionic bond – covalent bond – metallic bond – molecular bond – hydrogen bond –						K1 – K3	12

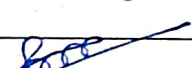

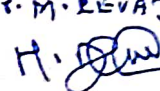
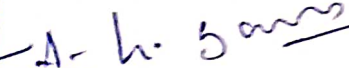
	their properties. (L-9,T-3 Hours)		
IV	<p>ELECTRONICS</p> <p>Theory of energy bands in crystals – the distinction between conductors, insulators and semiconductors – intrinsic and extrinsic semiconductors – Zener diode characteristics – break down voltage – Zener diode as a voltage regulator.</p> <p>Operational amplifier: Ideal operational amplifier – characteristic of an operational amplifier – Inverting and Non inverting amplifiers – Differential amplifier – CMRR – OP amp as a comparator.</p> <p>(L-9,T-3 Hours)</p>	K1 –K4	12
V	<p>DIGITAL ELECTRONICS</p> <p>Number systems – Binary – Octal – Hexadecimal – Boolean Algebra – simplification of Boolean Algebra – De Morgan's theorem and its verification – Basic logic gates – OR, AND, NOT, NAND, NOR, EX-OR gates – logic gates using diodes and transistor(OR, AND, NOT) - NAND & NOR as a Universal Building Block –Half and full Binary adders.</p> <p>(L-9,T-3 Hours)</p>	K1 – K4	12
Course Outcome	CO1: Classify the vector atom model & amp; type of quantum numbers in atomic physics.	K1	
	CO2: Understand the concept of nucleus & amp; nuclear model and various types of chamber in nuclear physics.	K2	
	CO3: Identify the band theory of solids and understand the working for diodes in electronics.	K3	
	CO4: Classify the different types of Electronics.	K4	
	CO5: Familiar with the basic analog and digital electronic circuits	K5	
Learning Resources			
Text Books	<p>1.R.Murugesan, Allied Physics I & II, S. Chand & Co, New Delhi (2006)</p> <p>2. Kittel, Solid-state Physics, Wiley student edition,2007, 8th edition</p> <p>3. Principles of Electronics, V. K .Mehta S. Chand & Co, New Delhi (2003)</p>		
Reference Books	<p>1. Malvino & Leach, Digital Principles & applications, Tata Mc Graw Hill, 1995, 5 th edition.</p> <p>2.R.Murugesan and KiruthigaSivaprasath, Modern Physics, S. Chand & Co, New Delhi(2016)</p>		

Website Link	1. https://youtu.be/YrjJFQdzxfU 2. https://youtu.be/tKOq1bGfdOQ 3. https://youtu.be/9kBog5wYVKM
---------------------	--

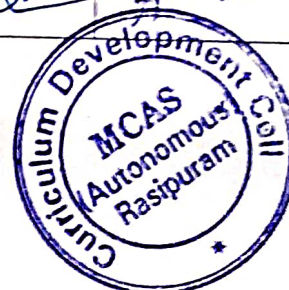
CO Mapping

CO NUMBER	PO1	PO2	PO3	PO4	PO5	PS01	PS02	PSO3	PSO4	PSO5
CO1	S	S	M	S	S	S	M	S	S	S
CO2	S	M	S	S	S	S	M	M	S	S
CO3	S	M	M	M	S	S	M	S	S	S
CO4	S	S	S	M	S	S	M	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S
Level of Correlation between CO and PO	L-LOW		M-MEDIUM		S-STRONG					

Tutorial Schedule	-
Teaching and Learning Methods	Chalk and talk method Power Point Presentation
Assesment Methods	Assignment, unit test conducting, model test conducting

Designed By	Verified By	Approved By
  M. Srinivas	Dr. M. Revathi  H. Srinivas	 A. K. Srinivas

1. P. Kamisharathu
2. M. Saranya



B. Sc-Physics Syllabus LOCF-CBCS with effect from 2021-2022 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M2UPHAP1/ 21M4UPHAP1	PRACTICAL : ALLIED PHYSICS	GEC PRACTICAL - I	I/III	2	-	-	2	2
Objective	It is aimed at exposing the undergraduate allied students to the technique of handling simple measuring instrument and also make them measure certain properties of materials.							
S. No.	List of Experiments (Any 16 Experiments)						Knowledge Levels	Sessions
1	Young's modulus (η) - non-uniform bending - pin and microscope.						K1	2
2	Young's modulus (η) - uniform bending - scale and telescope method.						K1	2
3	Static Torsion - Rigidity modulus of a rod.						K2	2
4	Torsion Pendulum - Rigidity modulus of a wire.						K1	2
5	Surface tension and interfacial surface tension of a liquid-drop weight method.						K1	2
6	Sonometer - frequency of a tuning fork.						K1	2
7	Sonometer - AC frequency						K2	2
8	Air Wedge - thickness of a wire.						K2	2
9	Post office Box - Determination of energy Band Gap of the thermistor.						K2	2
10	Spectrometer - Refractive index of a solid prism.						K2	2
11	Spectrometer - grating-normal incidence-Determination of wavelength-mercury lamp.						K1	2
12	Determination of viscosity using a graduated burette.						K2	2
13	Specific heat capacity of a liquid - half time correction.						K3	2

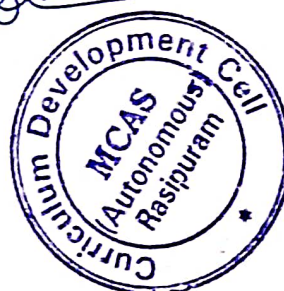
14	Potentiometer - calibration of an ammeter.	K2	2
15	Potentiometer - calibration of low range voltmeter.	K1	2
16	C.F.Bridge - Determination of Specific Resistance of a coil.	K3	2
17	Characteristics of Zener diode.	K2	2
18	Verification of truth tables of AND, OR & NOT gates using ICs.	K1	2
19	Construction of low range power pack using two diodes.	K2	2
20	Verification of De Morgan's theorems.	K3	2
Course Outcome	CO1: Remember the knowledge of the potentiometer and to apply it for various experiments	K1	
	CO2: Understand the usage of basic laws and theories to determine various properties of the materials given.	K2	
	CO3: Apply the knowledge of physical optics using spectrometer.	K3	
	CO4: Analyze the concepts of Young's Modulus of different substances.	K4	
	CO5: Evaluate the characteristics of various diodes and construct power supply.	K5	
Learning Resources			
Text Books	1.M.N. Srinivasan, S. Balasubramanian, R. Ranganathan, A textbook of PRACTICAL PHYSICS, Sultan Chand and sons educational publishers, New Delhi. Edition (2017) 2.M.K Subramanian, S.Padmanathan, S.Somasundaram, B.Sc Allied Physics Practical, Apsara Publications, Trichy, revised edition (2020)		
Reference Books	1.C.C.Ourseph, C.Rangarajan, R. Balakrishnan - A Text Book of Practical Physics - S.Viswanathan Publisher - Part II (1996) 2.S.L. Gupta and V.Kumar - Practical Physics - PragatiPrakashan - 25th Edition (2002)		
Website Link	1. https://youtu.be/m8yAALCE0LE 2. https://youtu.be/Su8TvWW-j0g 3. https://youtu.be/QezZal4Gllg 4. https://youtu.be/M-q_CqgQ1W8 5. https://youtu.be/w23IkGUChag		

CO Mapping

CO NUMBER	PO1	PO2	PO3	PO4	PO5	PS01	PS02	PS03	PSO4	PSO5
CO1	M	S	S	S	M	L	M	S	M	M
CO2	S	S	L	M	M	M	L	S	M	S
CO3	M	M	S	S	M	L	M	S	S	M
CO4	S	S	M	M	M	S	L	M	S	S
CO5	M	M	S	L	M	M	M	M	S	M
Level of Correlation between CO and PO	L-LOW		M-MEDIUM		S-STRONG					

Tutorial Schedule	-
Teaching and Learning Methods	Demonstration and practical Sessions
Assessment Methods	To conduct Model Practical

Designed By	Verified By	Approved By
Ms.M.SARANYA M. <i>[Signature]</i>	Dr. M. REVATHI <i>[Signature]</i>	A. h. <i>[Signature]</i>



Nonmajor Elective Course Details
SYLLABUS - CBCS PATTERN
EFFECTIVE FROM THE ACADEMIC YEAR 2021-2022 Onwards
LIST OF NMEC COURSES

S.NO	SEM	SUB_CODE	TITLE OF THE SUBJECT
1	III	21M3UPHN01	PHYSICS IN EVERYDAY LIFE
2	III	21M3UPHN02	AUDIO AND VIDEO SYSTEMS
3	IV	21M4UPHN03	NON CONVENTIONAL ENERGY SOURCES
4	IV	21M4UPHN04	ESSENTIAL OF ELECTRICITY

B.Sc-Physics Syllabus LOCF-CBCS with effect from 2021-2022 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M3UPHN01	PHYSICS IN EVERY DAY LIFE	NMEC-I	III	2	2	-	-	2
Objective	Students can understand the behaviour of matter in everyday life and gain knowledge in properties of matter, electricity and magnetism.							
Unit	Course Content						Knowledge Levels	Sessions
I	MECHANICS : Motion, Force and Newton's laws-Momentum-projectile and circular motions-gravitation- planetary motion and earth satellites-communication satellites-work, power and energy – energy environment-rotational motion.. (L-3 hours)						K ₁ - K2	3
II	PROPERTIES OF MATTER : States of matter – binding forces -pressure and thrust – Pascal's law – Archimedes principle –Bernoulli's principle – Formula-Viscosity-measurement of viscosity. (L-3 Hours)						K4	3
III	ELECTRICITY : Colomb's law- action of points, lightning arrester-Ohms's law- electric power- electrical safety- electromagnetic induction- Faraday's law- Lenz law-transformers- Mariners' compass. (L-3 Hours)						K3	3
IV	HEAT AND TEMPERATURE : Heat – measurement of heat and temperature - heat transfer mechanisms –sources of heat - temperature- definition with SI units-heat vs temperature- effect of pressure on elting point boiling point-thermometer - types of thermometer- Clinical thermometer - Laboratory thermometer-Digital thermometer -Heat engines- steam engines and diesel engine. (L-3 Hours)						K1	3
V	OPTICS: Light – nature of light- characteristics of light-properties of light-light sources- natural light source- artificial light source- lens- types of lens- concave and convex lens- uses of lens-optical instruments-Camera, telescope , Microscope -Projector-definition- principle-working and applications. (L-3 Hours)						K4	3
Course Outcome	CO1: Remember the concept of properties of matter and recognize their applications in various real problems.						K1	

	CO2: Understand the capability of doing back-of the envelope calculations in a diversity of situations	K2	
	CO3: Applying the knowledge on heat and thermodynamics, sound and spectroscopy.	K3	
	CO4: Analyze the laws involved in gravitation and elasticity.	K4	
	CO5: Evaluate the concept of geometry of lenses, interference, diffraction and polarization.	K5	
Learning Resources			
Text Books	<ol style="list-style-type: none"> 1. R. Murugesan, Properties of Matter and Acoustics, 2nd Edition, S. Chand & Co., Ltd. Reprint (2017). 2. R. Murugesan, Kiruthiga Sivaprasath, Modern Physics, Twelfth Revised Edition, S. Chand & Co. Ltd. Reprint (2006). 3. Brijlal N. subramaniyam, Heat and Thermodynamics, S. Chand & Co. Ltd, Reprint (2006). 4. R. Murugesan, Electricity and Magnetism, Revised edition, S. Chand & Co., Reprint (2014) 5. N. Subramaniyam, Brijlal and M.N. Avadhanulu, A textbook of Optics, S. Chand & Co, New Delhi (2012) 		
Reference Books	<ol style="list-style-type: none"> 1. R. Murugesan and Kiruthiga Sivaprasath, Modern Physics, S. Chand & Co, New Delhi (2016). 2. D.S. Mathur, Elements of properties of matter and acoustics, S. Chand & Company Ltd., New Delhi (2010) 		
Website Link	<ol style="list-style-type: none"> 1 https://www.physicstutoronline.co.uk/alevelphysicsnotes/ 2 https://www.askiitians.com/revision-notes/physics/atomic-physics/ 3 www.khanacademy.org/science/physics/elasticity/surface tension 4 https://sites.google.com/brown.edu/lecture-demonstrations/home?authuser=0 		

CO Mapping

CO NUMBER	PO1	PO2	PO3	PO4	PO5	PS01	PS02	PSO3	PSO4	PSO5
CO1	S	S	M	S	S	S	M	S	S	S
CO2	S	M	S	S	S	S	M	M	S	S
CO3	S	M	M	M	S	S	M	S	S	S
CO4	S	S	S	M	S	S	M	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S
Level of Correlation between CO and PO	L-LOW		M-MEDIUM		S-STRONG					

Tutorial Schedule	Group discussion Kahoot Moodle cloud Google class room
Teaching and Learning Methods	Chalk and talk method Power Point Presentation
Assesment Methods	CIA, ESE, Pre-Semester Examination

Designed By	Verified By	Approved By
Dr.C. INDIRAPRIYADHARSINI <i>[Signature]</i>	Dr. M. REVATHI <i>[Signature]</i> 20/11/2021	<i>[Signature]</i>

B. Sc-Physics Syllabus LOCF-CBCS with effect from 2021-2022 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
21M4UPHN04	ESSENTIAL OF ELECTRICITY	NMEC-II	IV	2	2	-	-	2
Objective	To impart knowledge on the basic concepts of Electricity, capacitor, and Resistance, types of batteries.							
Unit	Course Content	Knowledge Levels	Sessions					
I	Electricity : Electrification by friction - two kinds of electricity -capacitor -principle of condenser - types of condensers - fixed condenser -variable condenser. (L-3 hours)	K1	3					
II	Condenser: Condenser boxes - electrolytic condenser - guard ring - condenser -condenser in series - condensers in parallel. (L-3 Hours)	K2	3					
III	Resistance: Electric field - potential - Ohm's law - electrical energy and power -resistance - types of resistance - fixed resistance - variable resistance. (L-3 Hours)	K2	3					
IV	Electrical circuits: Colour codes - resistance in series - resistance in parallel - Kirchoff's law - application to Wheatstone's network. (L-3 Hours)	K2	3					
V	Batteries: Primary cell - Daniel, Lechlanche, Dry cell - Secondary cell - Lead acid, Nickel (Principle only) - Cadmium cell - rechargeable cell. (L-3 Hours)	K2	3					
Course Outcome	CO1: Remember the concept of construction of different types of batteries.	K1						
	CO2: Understand the different types of Condenser.	K2						
	CO3: Apply the basic concepts of electrostatics to electric field and potential Calculation.	K3						
	CO4: Analyze the concepts of Ohms law, series parallel combination of Condenser.	K4						

	CO5: Evaluate the concept of various laws and series parallel combination of resistances, will be able to write colour codes of resistance		
Learning Resources			
Text Books	1. Electricity and Magnetism, Brijlal and Subramaniam, S. Chand & Co, New Delhi (2016) 2. Electricity and Magnetism, R. Murugesan, S. Chand & Co, New Delhi (2016)		
Reference Books	1. Electricity and Magnetism, D. N. Vasudeva, S. Chand & Co, New Delhi (2016) 2. Electricity and Magnetism, K. K. Tewari, S. Chand & Co, New Delhi (2016) 3. University Physics with Modern Physics Hugh D. Young and Roger A. Freedman, Sears & Zemansky's, 14th Edition (2015)		
Website Link	1. https://www.electronics-tutorials.ws/capacitor/cap_2.html 2. https://www.geeksforgeeks.org/capacitors-in-series-and-in-parallel/ 3. https://www.tutorialspoint.com/resistor-types-and-color-code 4. https://www.electronics-tutorials.ws/dccircuits/dcp_4.html 5. https://www.brainkart.com/article/Primary-Cell---Daniel-cell,-Leclanche-cell_541/		

CO-PO Mapping

CO NUMBER	PO1	PO2	PO3	PO4	PO5	PS01	PS02	PS03	PS04	PS05
CO1	M	M	M	L	M	S	M	L	M	M
CO2	M	L	M	S	M	M	M	L	M	M
CO3	M	S	L	M	S	S	M	M	M	M
CO4	M	S	M	M	M	S	M	L	M	M
CO5	M	M	L	S	M	S	M	L	M	M
Level of Correlation between CO and PO	L-LOW		M-MEDIUM		S-STRONG					

Tutorial Schedule	Online seminars ,PPT,virtual classroom teaching
Teaching and Learning Methods	Chalk and talk lectures, Group Discussion, Seminar, Interaction, Experimentally demonstrate and PowerPoint Presentation etc.
Assessment Methods	Assignment, unit test ,model test ..

Designed By	Verified By	Approved By
Mr.V.Satheeshkumar	Dr.M.REYATHU	A-h-b

Seethy S

M. Dew

