



Mangayarkarasi College of Arts & Science for Women, Paravai.

(Affiliated to Madurai Kamaraj University)

ISO 9001:2015 Certified Institution, Re- Accredited by NAAC with 'B' grade

LESSON PLAN

PROGRAMME: B.Sc.	SEMESTER-5/ YEAR: 2020-21
COURSE: Nanophysics	COURSE CODE: SPHJS51
FACULTY 'S NAME: Dr. M. Sinduja	TOTAL HOURS: 30 hrs Credit: 2

SYLLABUS

Objectives:

The course is intended to create basic knowledge in nanomaterials, understand the scientific perspectives of nanomaterials, identify the techniques suitable for nanomaterial synthesis, and to know the significance of nanomaterials

COURSE OUTCOME:

- CO1: Categorize different synthesis technique of nanoparticles
- CO2: Explain the different quantum nanostructures and learn the various applications such as quantum well lasers and quantum cascade lasers
- CO3: Explain the basics of carbon nanotubes and its applications
- CO4: Recognize the nanocrystalline soft material and permanent magnetic material
- CO5: Summarize the various application of nanotechnology

Unit I

History of Nanotechnology- Nanostructures- synthesis of oxide nano particles- Synthesis of semiconductor nano particles- Synthesis of metallic nano particles

Unit II

Super lattice- preparation of Quantum nanostructure- Quantum well laser- Quantum cascade laser- Quantum wire- Quantum dot- Application of Quantum dots.

Unit III

Discovery of Nanotubes- Carbon Allotropes- Types of carbon Nanotubes- Graphene sheet to a single walled nanotube- Electronic structure of Carbon Nanotubes- Synthesis of Carbon Nanotube.

Unit IV

Nanocrystalline soft material- Permanent magnet material- Theoretical background- Super paramagnetism- Coulomb blockade-Quantum cellular Automata



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Unit V

Chemistry and Environment – Energy applications of nanotechnology- Information and Communication- Heavy industry-Consumer goods- Nanomedicine - Medical application of Nanotechnology.

Text Book:

T1. Text book of Nanoscience and Nanotechnology – B. S. Moorthy, P. Sankar, Baldev Raj, B. B. Rath and James Murdy University Press –IIM

T2. Nanophysics, Sr. Geradin Jayam, Holy Cross College, Nagercoil(2010)

Reference book:

R1. Nanoscience and Nanotechnology: Fundamentals to Frontiers' M.S. Ramachandra Rao, Shubra Singh, Wiley India pvt. Ltd., New Delhi. (2013).

R2. Nano the Essentials' - T. Pradeep, Tata Mc.Graw Hill company Ltd(2007)

R3. *The Chemistry of Nano materials : Synthesis, Properties and Applications'*, Volume1

C. N. R. Rao, A. Müller, A. K. Cheetham, , Germany (2004).

COURSE PLAN- VIst SEMESTER 2020-21

S No	HOURS	TOPIC	BOOK	Page number
UNIT-1				
1	1	History of Nanotechnology- Nanostructures	T1	Online mode (google meet)
2	1	synthesis of oxide nano particles	T1	Online mode (google meet)
3	1	Synthesis of semiconductor nano particles	T1	Online mode (google meet)
4	1	Synthesis of metallic nano particle	T1	Online mode (google meet)
5	2	University Questions		Online mode (google meet)
		ICT class		
		Test		
Unit 2				
6	1	Super lattice- preparation of Quantum nanostructure	T1	Online mode (google meet)
7	1	Quantum well laser	T1	Black board teaching
8	1	Quantum cascade laser	T1	Black board teaching
9	1	Quantum wire- Quantum dot- Application of Quantum dots.	T1	Black board teaching



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10	2	University Questions		Class test
		ICT class		
		Test		
Unit 3				
11	1	Discovery of Nanotubes- Carbon Allotropes	R2	Black board teaching
12	1	Types of carbon Nanotubes- Graphene sheet to a single walled nanotube	R2	Black board teaching
13	1	Electronic structure of Carbon Nanotubes	R2	Black board teaching
14	1	Synthesis of Carbon Nanotube.	R2	Black board teaching
15	2	University questions		Class test
		ICT class		
		Test		
Unit 4				
16	1	Nanocrystalline soft material	R2	Black board teaching
17	1	Permanent magnet material- Theoretical background	R2	Black board teaching
18	1	Super paramagnetism- Coulomb blockade	R2	Black board teaching
19	1	Quantum cellular Automata	R2	Black board teaching
20	2	University questions		
		ICT class		
		Test		
Unit 5				
21	1	Chemistry and Environment	R2	Black board teaching
22	1	Energy applications of nanotechnology-	R2	Black board teaching
23	1	Information and Communication- Heavy industry-Consumer goods	R2	Black board teaching
24	1	-Nanomedicine - Medical application of Nanotechnology.	R2	Black board teaching
25	1	University questions		Class test
		ICT class		
		Test		

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LESSON PLAN

PROGRAMME: B.Sc., PHYSICS	SEMESTER/ YEAR: V /2020-21
COURSE: NUCLEAR PHYSICS	COURSE CODE: SPHJC52
FACULTY 'S NAME: MRS.M.GOWRI	TOTAL HOURS : 60

SYLLABUS

Objectives:

This course is designed to

1. Categorize the nuclear forces and their elementary particles.
2. Identify the interactions between energetic particles and matter and detectors of nuclear radiations.
3. Develop understanding laws of radioactive decays, nuclear fission and fusion reactors.

COURSE OUTCOME:

- CO1:** Demonstrate an understanding of nuclear forces and other sub atomic particles.
- CO2:** Justify the motive behind constructing more accelerators .and explain basic difference between a cyclotron and a Betatron.
- CO3:** Compare and contrast briefly the types of radiation, alpha emission, beta emission and gamma emission.
- CO4:** Justify the fact that electrons are emitted from nuclei in alpha, beta, gamma decays, and nuclear transmutations.
- CO5:** Explain the working principles of fission bomb and hydrogen bomb and nuclear reactors.

Unit I

Isotopes – Isotones – Isobars – Atomic mass unit – Properties of the nucleus – Nuclear Binding Energy – Nuclear forces – Yukawa's theory (no derivations) – theories of nuclear composition – proton – electron hypothesis – Model of nuclear structure - the liquid droop model – Binding energy formula – Shell model – Collective model.



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Unit II

Particle Accelerators – Synchro – cyclotron – Betatron – proton synchrotron – electron synchrotron – detectors – Wilson cloud chamber – bubble chamber – photographic emulsion technique – fundamental particles – particles and antiparticles – particles instability – conservation laws.

Unit III

Laws of radio activity – Half life period – Mean life – Radio Carbon dating – α rays – Geiger Nuttal law – experimental determination by Geiger- Nuttal law – α disintegration energy – theory of α decay, β decay – electron capture, γ rays – determination of wavelength by diamond crystal spectrometer – origin of rays – internal conversion.

Unit IV

Nuclear transmutations by α particles, protons, deuterons, neutrons and electrons – Photo disintegration – nuclear fission – energy release. Explanation – (C.N Cycle and P.P Cycle) Nuclear fusion – Thermo nuclear reaction – Controlled thermo nuclear reaction – Cosmic rays– origin – primary – secondary – Azimuthal effect – East-West effect pair production & annihilation - Van Allen Belt.

Unit V

Utilisation of nuclear energy - principle and action of atom bomb & Hydrogen Bomb– production of electricity from energy – Nuclear reactors – General features of nuclear reactors – Different types of nuclear reactors – Pressurized water reactors – Boiling water reactors – Fast Breeder reactors – Radio isotopes and their application.

Text Book:

1. Modern Physics – R. Murugesan, S.Chand & Co.,1998.

Reference Books:

1. Modern Physics by Seghal, Choptra and Seghal, Sultan Chand1998.
2. Nuclear Physics by Keplan.I – Marosa Publishing House,1995.



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COURSE PLAN- 1st SEMESTER 2020-21

S No	HOURS	TOPIC	BOOK	TEACHING MODE
UNIT-1				
1.	1	Isotopes, Isotones, Isobars, Atomic mass unit.	T1	Online
2.	1	Properties of the nucleus	T1	Online
3.	1	Nuclear binding Energy, Nuclear forces.	T1	Online
4.	1	Yukawa's theory (no derivation), theories of nuclear composition	T1	Online
5.	1	proton , electron hypothesis ,	T1	Online
6.	1	Model of nuclear structure	T1	Online
7.	1	The liquid drop model , Binding energy formula	T1	Online
8.	1	Shell model , Collective model	T1	Online
9.	1	UNIVERSITY QUESTIONS		Online
10.	1	ICT CLASS		Online
11.	1	TEST		Online
UNIT-2				
12.	1	Particle Accelerators, Synchro cyclotron.	T1	Online
13.	1	Betatron ,proton synchrotron ,electron synchrotron	T1	Online
14.	1	detectors , Wilson cloud chamber , bubble chamber	T1	Chalk and talk
15.	1	photographic emulsion technique , fundamental particles	T1	Chalk and talk
16.	1	particles and antiparticles	T1	Online
17.	1	Particle instability, conservation laws.	T1	Online
18.	1	UNIVERSITY QUESTIONS		Online
19.	1	ICT CLASS		Online
20.	1	TEST		Online



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UNIT-3				
21.	1	Laws of radio activity	T1	Online
22.	1	Half life period ,Mean life	T1	Online
23.	1	Radio Carbon dating	T1	Online
24.	1	α rays ,Geiger Nuttal law	T1	Chalk and talk
25.	1	Experimental determination by Geiger-Nuttal law	T1	Chalk and talk
26.	1	Disintegration energy,	T1	Online
27.	1	Theory of α decay, β decay, γ rays	T1	Online
28.	1	Determination of wavelength by diamond crystal spectrometer	T1	Online
29.	1	Origin of rays	T1	Online
30.	1	γ rays	T1	Online
31.	1	Electron capture	T1	Online
32.	1	Internal conversion	T1	Online
33.	1	UNIVERSITY QUESTIONS		Online
34.	1	ICT CLASS		Online
35.	1	TEST		Online
UNIT-4				
36.	1	Nuclear transmutations by α particles, protons,	T1	Offline
37.	1	Deuterons, neutrons and electrons ,	T1	Offline
38.	1	Photo disintegration	T1	Offline
39.	1	Nuclear fission , energy release, Explanation (C.N Cycle and P.P Cycle)	T1	Offline
40.	1	Nuclear fusion ,Thermo nuclear reaction	T1	Offline
41.	1	Controlled thermo nuclear reaction ,	T1	Offline
42.	1	Cosmic rays, origin of cosmic rays,.	T1	Offline



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43.	1	primary & secondary cosmic rays	T1	Offline
44.	1	Azimuthal effect , East-West effect	T1	Offline
45.	1	Pair production & annihilation , Van Allen Belt	T1	Offline
46.	1	UNIVERSITY QUESTIONS		Online
47.	1	ICT CLASS		Online
48.	1	TEST		Online
UNIT-5				
49.	1	Utilisation of nuclear energy	T1	Chalk and talk
50.	1	principle and action of atom bomb & Hydrogen Bomb	T1	Chalk and talk
51.	1	Nuclear reactors , General features of nuclear reactors	T1	Chalk and talk
52.	1	Different types of nuclear reactors	T1	Chalk and talk
53.	1	Pressurized water reactors	T1	Chalk and talk
54.	1	Boiling water reactors	T1	Offline
55.	1	Fast Breeder reactors	T1	Offline
56.	1	Radio isotopes	T1	Offline
57.	1	Radio isotopes and their application	T1	Offline
58.	1	UNIVERSITY QUESTIONS		Online
59.	1	ICT CLASS		Online
60.	1	TEST		Online
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LESSON PLAN

PROGRAMME: B.Sc.	SEMESTER-3/ YEAR: 2021-22
COURSE: Physics of Electronic devices	COURSE CODE: SELJA31
FACULTY 'S NAME: Dr. M. Sinduja	TOTAL HOURS: 60 hrs Credit: 4

SYLLABUS

Objectives:

This course is designed to acquire knowledge in basic concepts of semiconductor physics, give an exposure on pn semiconductor diode, opto-electronic devices and field effect transistors

COURSE OUTCOME:

- CO1: Familiarize the basic concepts of energy band and charge carrier in semiconductors
- CO2: Understand the process underlying luminescence and various photo conductivity devices
- CO3: Know the construction and working of pn junction semiconductor diodes
- CO4: Familiarize the concepts of various opto electronic devices
- CO5: understand the construction and working of field effect transistors

Unit I

Energy band in solids: energy band-metal, semiconductor and insulator-direct and indirect semiconductors. Charge carrier in semiconductor: electrons and holes- effective mass in intrinsic semiconductor, dependence of Fermi level on temperature and doping concentration. Carrier concentration: Fermi level- electron and hole concentration at equilibrium- temperature dependence of carrier concentration. Drift of carriers in electric field: conductivity and mobility- drift- effect of temperature and doping on mobility (qualitative)

Unit II

Luminescence: photoluminescence- electroluminescence- carrier lifetime of photo conductivity- direct recombination of electrons and holes- indirect recombination; trapping- photoconductivity devices- diffusion of carriers-diffusion process- diffusion and drift of carrier; built-in-field- diffusion and recombination,- diffusion length.



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Unit III

PN junction diodes: pn junction diodes, depletion region, barrier potential, working in forward and reverse bias condition- junction capacitance, diode current equation- effect of temperature on reverse saturation current- construction, working, V-I characteristics and simple application of varactor diode, zener diode, and tunnel diode.

Unit IV

Photodiodes: current and voltage in an illumination junction- solar cells-photodetectors-LED: light-emitting materials- semiconductor laser: population inversion- basic of semiconductor laser- materials of semiconductor lasers.

Unit V

Types of FET- Characteristics and principles of operation of JFET- JFET as amplifier- CS, CD, CG configuration- operation of MOSFET as a switch- as a variable resistor- UJT- SCR and its characteristics.

Text Book:

- T1. En G. Streetman and sanjay kumar Banerjee, 'Solid state Electronics', 6th edition PHI
 Unit 1: chapter-3 (relevant section); Unit-2: chapter-4 (relevant section); Unit 3: chapter-8 (relevant sections)
- T2. Electronic devices and circuit theory- Robert L. Boylestad and Louis Nashelsky

Reference book:

- R1. S. Salivahanan, N. Suresh kumar and A. Vallavaraj, 'electronic devices and circuits', TMH (1998)
 R2. Millman and Halkias, 'Electronic devices and circuits', Mc Graw Hill, V reprint, 1993
 R3. Boylestsd L. Robert and Nashalsky Louis, ' electronic devices and circuit theory', PHI 1997

COURSE PLAN- VIst SEMESTER 2020-21

S No	HOURS	TOPIC	BOOK	Page number
UNIT-1				
1	2	Energy band in solids: energy band-metal, semiconductor and insulator	R2	Online mode (google meet)
2	2	Direct and indirect semiconductors. Charge carrier in semiconductor: electrons and holes- effective mass in intrinsic semiconductor	R2	Online mode (google meet)
3	2	dependence of Fermi level on temperature and doping concentration	R2	Online mode (google meet)
4	2	Carrier concentration: Fermi level- electron	R2	Online mode (google meet)



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		and hole concentration at equilibrium-		meet)
5	2	Drift of carriers in electric field: conductivity and mobility- drift	R2	Online mode (google meet)
6	2	temperature dependence of carrier concentration	R2	Online mode (google meet)
7	1	effect of temperature and doping on mobility (qualitative)	R2	Online mode (google meet)
8	1	University Questions		Online mode (google meet)
9	1	ICT class		
10	2	Test		Online mode (google meet)
Unit 2				
11	1	Luminescence: photoluminescence- electroluminescence	R2	Black board teaching
12	1	carrier lifetime of photo conductivity- direct recombination of electrons and holes	R2	Black board teaching
13	1	indirect recombination; trapping- photoconductivity devices	R2	Black board teaching
14	1	diffusion of carriers-diffusion process- diffusion and drift of carrier	R2	Black board teaching
15	1	built-in-field- diffusion and recombination,-	R2	Black board teaching
16	1	diffusion length	R2	Black board teaching
17	1	University Questions		
18	1	ICT class		
19	2	Test		
Unit 3				
20	2	PN junction diodes: pn junction diodes, depletion region, barrier potential, working in forward and reverse bias condition	R2	Black board teaching
21	1	junction capacitance, diode current equation- effect of temperature on reverse saturation current	R2	Black board teaching
22	1	construction, working, V-I characteristics and simple application of varactor diode	R2	Black board teaching
23	1	construction, working, V-I characteristics and simple application of zener diode	R2	Black board teaching
24	1	construction, working, V-I characteristics and simple application of tunnel diode.	R2	Black board teaching



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25	1	University questions		
26	1	ICT class		
27	2	Test		
Unit 4				
28	1	Photodiodes: current and voltage in an illumination junction	R2	Black board teaching
29	1	solar cells-photodetector	R2	Black board teaching
30	1	LED: light- emitting materials	R2	Black board teaching
31	2	semiconductor laser: population inversion- basic of semiconductor laser	R2	Black board teaching
32	1	materials of semiconductor lasers.	R2	Black board teaching
33	1	University questions		
34	1	ICT class		
35	2	Test		
Unit 5				
36	1	Types of FET	R2	Black board teaching
37	2	Characteristics and principles of operation of JFET	R2	Black board teaching
38	2	JFET as amplifier- CS, CD, CG configuration-	R2	Black board teaching
39	1	Operation of MOSFET as a switch- as a variable resistor	R2	Black board teaching
40	2	UJT- SCR and its characteristics.	R2	Black board teaching
41	1	University questions		
42	1	ICT class		
43	2	Test		

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LESSON PLAN

PROGRAMME: B.Sc., Physics	SEMESTER/ YEAR: I Sem /2020-21
COURSE: Solar Energy	COURSE CODE:SPHJS12
FACULTY 'S NAME: Mrs.G.Jenifer	TOTAL HOURS :30 Hours

SYLLABUS

Objectives:

- i. Describe the need of utilization of renewable resources
- ii. Explain and provides knowledge on the solar, wind, bio mass, geothermal and ocean energy resources and technologies.
- iii. Discuss the direct energy conversion and its various forms.

COURSE OUTCOME:

CO1: Explaining renewable and non renewable energy sources and systems

CO2: Describe the principle of solar radiation, instruments for measuring solar radiation and solar energy collectors

CO3: Illustrate the various methods of solar energy storage and principle of photo voltaic energy conversion

CO4: Discuss the methods of harnessing geothermal, ocean thermal energy and Tidal energy

CO5: Describes the technologies of wind and bio mass energy conversion and its utilization

Unit I

Various forms of energy – renewable and non renewable energy system – Coal, oil and natural gas – availability – Merits and demerits.

Unit II

Solar energy– Nature of solar radiation– Components– Solar heaters– Crop dryers– space cooling.



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Unit III

Solar ponds – Solar cooker – Water desalination – Photo voltaic basics – Merits and demerits.

Unit IV

Geothermal energy– Wind energy– Ocean thermal energy conversion (OTEC)– Energy from waves and tides– (Basic ideas, nature, application, merits &demerits.

Unit V

Biomass energy– classification– photo synthesis– Bio mass conversion– Gobar gas plants– ethanol from wood.

Text Book

1.Solar enrgy by Dr.A.Mujiber rahman

COURSE PLAN- 1st SEMESTER 2020-21

S No	HOURS	TOPIC	BOOK	TEACHING MODE
UNIT-1				
1	1	Various forms of energy	T1	Black board teaching
2	1	– Coal, oil and natural gas	T1	Black board teaching
3	1	– availability – Merits and demerits.	T1	PPT Class
4	1	– renewable and non renewable energy system	T1	PPT Class



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5	1	UNIVERSITY QUESTIONS		
6	1	TEST		
UNIT-2				
7	1	Solar energy	T1	Black board teaching
8	1	Nature of solar radiation– Components	T1	Black board teaching
9	1	Solar heaters– Crop dryers– space cooling.	T1	Black board teaching
10	1	UNIVERSITY QUESTIONS		
11	1	ICT Class		PPT Class
12	1	TEST		
UNIT-3				
13	1	Solar ponds –	T1	Black board teaching
14	1	Solar cooker –	T1	Black board teaching
15	1	Water desalination	T1	Black board teaching
16	1	Photo voltaic basics – Merits and demerits.	T1	Black board teaching
17	1	UNIVERSITY QUESTIONS		
18	1	TEST		
UNIT-4				
19	1	Geothermal energy–	T1	Black board teaching



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20	1	Wind energy– Ocean thermal energy conversion (OTEC)–	T1	Black board teaching
21	1	Energy from waves and tides	T1	Black board teaching
22	1	Basic ideas, nature, application, merits &demerits.	T1	Online mode
23	1	UNIVERSITY QUESTIONS		
24	1	TEST		
UNIT-5				
25	1	Biomass energy– classification	T1	Black board teaching
26	1	photo synthesis– Bio mass conversion	T1	Black board teaching
27	1	Gobar gas plants– ethanol from wood.	T1	Black board teaching
28	1	UNIVERSITY QUESTIONS		
29	1	ICT		PPT Class
30	1	TEST		

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LESSON PLAN

PROGRAMME: B.Sc., Physics	SEMESTER/ YEAR: I / 2020-21
COURSE: Value Education	COURSE CODE: UVEJV11
FACULTY 'S NAME: Ms. B.SIVARANJANI	TOTAL HOURS : 30 Hours

SYLLABUS

Objectives:

To impart citizenship values among the student, To make them awareness of civil rights, To familiarities the students with basic features of Indian constitution

COURSE OUTCOME:

CO1: Deals with the basis of values and individuals

CO2: Recognize the values of religion and society

CO3: Explaining the professional values and value of social institution

CO4: Expounds the concepts of Fundamental rights.

CO5: Deals with the concepts of directive principles and state policy

Unit I. Values and Individual

Values meaning – the significance of values – classification of values – needs of value education – values and the individual – self-discipline, self-confidence, self-initiative, empathy, compassion, forgiveness, honesty and courage.

Unit II. Values of Religion and Society

Karma yoga in Hinduism – love and justice in Christianity – brotherhood in Islam, compassion in Buddhism – ahimsa in Jainism and courage in Sikhism – need for religious harmony- Definition of society – democracy – secularism – socialism – gender justice – human rights – socio political awareness – social integration – social justice.

Unit III. Professional values & Role of social institutions in value formation

Definition – accountability – willingness to learn – team spirit- competence development – honesty – transparency – respecting others – democratic functioning – integrity and commitment. Role of family – peer group – society – educational institutions – role models and mass media in value formation

Unit IV:

Constitutional Values and Fundamental Rights **Constitutional Values:** Sovereignty – Socialism – Secularism – Democracy – Republic – Justice – Liberty – Equality – Fraternity – Dignity of the individual – Unity and integrity of the Nation – International peace and a just international



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order. **Fundamental rights:** Right to equality - Right to freedom - Right against exploitation - Right to freedom of religion - Cultural and educational rights - Right to constitutional remedies.

Unit V:

Directive Principles of State Policy: Meaning and Classification – Policies relating to economic and social Principles – Policies relating Gandhian Principles - Policies Relating to International Peace and Security – Policies relating to Universalisation of Education, Child Labour and Status of Women **Fundamental Duties:** Abiding and respecting the Constitution, its ideals and institutions - cherishing and following the noble ideals that inspired our national struggle for freedom – upholding and protecting the sovereignty, unity and integrity of India - defending the country – promoting the harmony and the spirit of common brotherhood and dignity of women - valuing and preserving the heritage of our composite culture - protecting and improving the natural environments - developing the scientific temper, humanism and the spirit of inquiry - safeguarding public property - serving towards excellence in all spheres of individual and collective activity - providing opportunities for education.

Text Book:

1.Value Education -R.Murugesan ,July 2019

Reference Books:

- 1.M.G.Chitakra: Education and Human Values, A.P.H.Publishing Corporation, New Delhi,2003
2. Chakravarthy, S.K.: Values and ethics for Organizations: Theory and Practice, Oxford University Press, NewDelhi ,1999.
3. Satchidananda, M.K.: Ethics, Education, Indian Unity and Culture, Ajantha Publications, Delhi,1991

COURSE PLAN- I SEMESTER 2020-21

S No	HR	TOPIC	BOOK	TEACHING MODE
UNIT-1				
1	1	Values meaning – the significance of values- classification of values –	T1-1,2,3,4,5,6,7,8 & 9	Black board teaching
2	1	needs of value education – values and the individual	T1-9,10,11,12 & 13	Black board teaching
3	1	self-discipline, self-confidence, self-initiative, empathy, compassion, forgiveness, honesty and courage.	T1-13 to 23	Black board teaching
4	1	UNIVERSITY QUESTIONS		



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5	1	ICT CLASS		PPT Class
6	1	TEST		
UNIT-2				
7	1	Karma yoga in Hinduism – love and justice in Christianity – brotherhood in Islam, compassion in Buddhism – ahimsa in Jainism and courage in Sikhis	T1- 26,27,28,29,30, 31,32,33,34,35, 36,37 to 47	Black board teaching
8	1	need for religious harmony- Definition of society – democracy – secularism – socialis	T1- 47,48,49,50,51, 52,53,	Black board teaching
9	1	gender justice – human rights – socio political awareness – social integration – social justice	T1- 61,62,63,64,65, 66 to 71	Black board teaching
10	1	UNIVERSITY QUESTIONS		
11	1	ICT CLASS		PPT Class
12	1	TEST		
UNIT-3				
13	1	Definition – accountability –willingness to learn – team sprit- competence development – honesty	T1- 74 to 81	Black board teaching
14	1	– transparency respecting others – democratic functioning –integrity and commitment-	T1- 81 to 91	PPT Class
15	2	Role of family – peer group – society – educational institutions – role models and mass media in value formation	T1- 91 to 104	PPT Class
16	1	UNIVERSITY QUESTIONS		
17	1	TEST		
UNIT-4				
18	1	Sovereignty – Socialism - Secularism – Democracy – Republic – Justice – Liberty – Equality – Fraternity - Dignity of the individual	T1-105 to 108	Black board teaching
19	2	Unity and integrity of the Nation - International peace and a just international order. Fundamental rights: Right to equality - Right to freedom	T1-108 to 112	Black board teaching



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20	1	Right against exploitation - Right to freedom of religion - Cultural and educational rights - Right to constitutional remedies.	T1-112 to114	Black board teaching
21	1	UNIVERSITY QUESTIONS		
22	1	TEST		
UNIT-5				
23	1	Meaning and Classification – Policies relating to economic and social Principles – Policies relating Gandhian Principles - Policies Relating to International Peace and Security – Policies relating to Universalisation of Education, Child Labour and Status of Women	T1- 115 to118	Black board teaching
24	1	Abiding and respecting the Constitution, its ideals and institutions - cherishing and following the noble ideals that inspired our national struggle for freedom – upholding and protecting the sovereignty, unity and integrity of India - defending the country	T1-119	PPT Class
25	2	promoting the harmony and the spirit of common brotherhood and dignity of women - valuing and preserving the heritage of our composite culture - protecting and improving the natural environments - developing the scientific temper, humanism and the spirit of inquiry - safeguarding public property - serving towards excellence in all spheres of individual and collective activity - providing opportunities foreducation.	T1-119 to 110	Black board teaching
26	1	UNIVERSITY QUESTIONS		PPT Class
27	1	TEST		
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MANGAYARKARASI



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LESSON PLAN

PROGRAMME: B.Sc., Physics	SEMESTER/ YEAR: V SEM / 2020-21
COURSE: ANALOG ELECTRONICS	COURSE CODE:SPHJC53
FACULTY 'S NAME: Mrs. D.SUDHA	TOTAL HOURS : 60 Hours

SYLLABUS

Course Objective

This course is intended to

- i. develop an understanding of small signal amplifier design using linear transistor and its analysis at low & high frequencies , including different feedback topologies and oscillators
- ii. indulge power amplifiers , tuned amplifiers and behavior of noise in an amplifier.
- iii. enable the students to understand the aspects of analog electronics in a lucid and comprehensive manner.

Course Outcomes

At the end of the course, the students will be able to

CO	Course Outcome
CO1	Identify & Measure various electrical parameters, plot characteristics of diode & to understand rectifier and filter circuits.
CO2	Design & analysis of common source FET amplifier and its frequency response
CO3	Design and analysis of CE amplifier using small signal pi-model and derivation of voltage



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	gain, current gain, input impedance and output impedance.
CO4	Design and analysis of positive and negative feedback amplifiers and oscillators.
CO5	Explain the importance of noise considerations in communication systems.

ANALOG ELECTRONICS

CREDIT - 4

Objective: To enable the students to understand the aspects of analog electronics in a lucid and comprehensive manner.

UNIT I:

Semiconductors- n type and p type- PN junction diode- characteristics- Zener diode characteristics- Full wave rectifiers- Bridge rectifier- Filter circuits- General theory- low pass, high pass, band pass and band elimination filters.

UNIT II

Transistors- three types of configuration- relation between α , β and γ - Biasing circuits- Field Effect Transistor (FET)- construction - n channel, p channel - FET polarities- working- FET characteristics- MOSFET- characteristics.

UNIT III

Amplification - small signal CE amplifier- input impedance, output impedance, current gain, voltage gain and power gain- single stage amplifier- frequency response - push-pull amplifier- Op-amp characteristics- application as adder, subtractor, integrator and differentiator.

UNIT IV

Feedback-positive & negative feedback- Barkhausen criteria- transistor oscillators- Hartley, Colpitt's, Phase shift oscillators with mathematical analysis.



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UNIT V

Modulation-Types of modulation- Modulation Factor-Amplitude modulation-power in AM wave-block diagram of AM transmitters and receivers-Frequency modulation-block diagram of FM transmitters and receivers-Digital modulation(qualitative)-Pulse amplitude modulation-Pulse time modulation.

Text Book:

1. Principles of electronics - V.K.Mehta ; S.Chand&co
2. Modern Physics – R.Murugaesan

Reference Books:

1. Basic electronics -B.L. Theraja; S.Chand &co
2. Electronic devices and circuits: Salivahanan, Sureshkumar Tata McGraw Hill
3. Electronic communication system - GeorgeKennedy

COURSE PLAN- V SEMESTER 2020-21

S No	HOURS	TOPIC	BOOK	TEACHING MODE
UNIT-1				
1	2	Semiconductors- n type and p type	T1	Online mode
2	2	PN junction diode-characteristics	T1	Online mode
3	1	Zener diode characteristics	T1	Offline mode
4	2	Full wave rectifiers, Bridge rectifier	T1	Online mode
5	1	Filter circuits- General theory	T1	Online mode



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6	2	low pass, high pass, band pass and band elimination filters.	R1	Online mode
7	1	UNIVERSITY QUESTIONS		
8	1	TEST		
UNIT-2				
9	3	Transistors- three types of configuration- relation between α , β and γ	T1 –	Offline mode
10	2	Biasing circuits	T1	Online mode
11	1	Field Effect Transistor (FET)- construction – n channel, p channel	T1	Online mode
12	1	working- FET characteristics, MOSFET- characteristics	T1	Online mode
14	1	UNIVERSITY QUESTIONS		
15	1	ICT CLASS		
16	1	TEST		
UNIT-3				
17	2	Amplification – small signal CE amplifier- input impedance, output impedance, current gain, voltage gain and power gain	R1	Offline mode
18	1	Single stage amplifier- frequency response	R1	Online mode
19	1	Push-pull amplifier	T1	Online mode
20	2	Op-amp characteristics- application as adder, subtractor, integrator and differentiator.	T2	Offline mode
21	1	UNIVERSITY QUESTIONS		
22	1	TEST		
UNIT-4				
23	2	Feedback-positive & negative feedback- Barkhausen criteria	T1	Online mode



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24	1	Transistor oscillators- Hartley	T1	Online mode
25	2	Colpitt's, Phase shift oscillators with mathematical analysis.	T2	Offline mode
26	1	UNIVERSITY QUESTIONS		
27	1	TEST		
UNIT-5				
28	1	Modulation-Types of modulation	T2	Online mode
29	1	Modulation Factor	T2	Online mode
30	2	Amplitude modulation- power in AM wave	T2	Online mode
31	1	Block diagram of AM transmitters and receivers	T2	Offline mode
32	1	Frequency modulation	T2	Offline mode
33	2	Block diagram of FM transmitters and receivers	T2	Offline mode
34	1	Digital modulation(qualitative)	R1	Offline mode
35	1	Pulse amplitude modulation	R1	Online mode
36	1	Pulse time modulation	R1	Online mode
37	1	UNIVERSITY QUESTIONS		
38	1	ICT CLASS		
39	1	TEST		

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LESSON PLAN

PROGRAMME: B.Sc. Maths & Chem	SEMESTER- 3 / YEAR: 2020-21
COURSE: Electricity & Electronics	COURSE CODE: SPHJA31
FACULTY 'S NAME: Mrs.N.Subhashree	TOTAL HOURS: 60 hrs Credit: 4

SYLLABUS

Objectives:

- i. Acquire knowledge in basic concepts of electricity and electronics
- ii. Give an exposure on electrical and electronic devices
- iii. Gather the basic knowledge in AC and DC equipments

COURSE OUTCOME:

- CO1: Acquire knowledge regarding various laws and principles associated with electronic systems
CO2: Imparting knowledge in basic laws and experiments to determine physical parameter
CO3: Study the magnetic effects on currents
CO4: Students will gain knowledge about various types of semiconductor devices
CO5: Understanding the basics in digital electronics

ELECTRICITY AND ELECTRONICS

CREDIT – 4

Unit I:

- Gauss law – proof – Applications – Field due to a charged sphere and an infinite plane sheet
– Field near a charged conducting cylinder – Coulomb's theorem – Electronic potential – Relation



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between potential and field – Capacitors – Expression for C of parallel plate spherical (outer sphere earthed) and cylindrical capacitors – Energy of charged capacitor - Loss of energy due to sharing of charges.

Unit II:

Kirchhoff's laws – application of wheatstone's network – sensitiveness of bridge – Carey Foster Bridge – Measurement of resistance and temperature – Coefficient of resistance principle of potentiometer – Calibration of ammeter and voltmeter – low and high range – measurement of resistance using potentiometer.

Unit III:

Torque on a current loop – mirror galvanometer, dead beat and ballistic – Current sensitiveness – voltage sensitiveness I B.G. theory – damping correction – experiments for charge sensitiveness – comparison of emf's and comparison of capacitors.

Electro motive force generated in a coil rotating in a uniform magnetic field – R.M.S and mean values – LCR circuit – impedances - Series and Parallel resonant circuits – Power factor – Wattless current – Choke.

Unit IV:

Junction diodes – Forward and Reverse bias – Diode characteristics – Types of diodes (LED and Zener) Bridge rectifier using junction – II filter – Transistors- Characteristics (CE modes only) – Biasing and action of a single transistor (CE) amplifier – Frequency response Hartley oscillator – Modulation



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(qualitative study) – Op-Amp and its characteristics – virtual earth – voltage amplifier in inverting mode - Op-Amp as adder and Subtractor.

Unit V:

Binary number system – reason for using binary numbers – binary to decimal and decimal to binary conversions – addition and subtraction of binary numbers. Logic circuits – Boolean algebra – De Morgan's theorem – OR, AND, NOT, NOR and NAND Gates – NOR and NAND gates as universal building blocks – Ex-Or gates.

Text Book:

1. Electricity & Electronics by R.Murugesan



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COURSE PLAN- V SEMESTER 2020-21

S No	HOURS	TOPIC	BOOK	Page number
UNIT-1				
1	2	Gaus's law – proof – Applications	T1	Online mode (google meet)
2	2	Field due to a charged sphere and an infinite plane sheet	T1	Online mode (google meet)
3	2	Field near a charged conducting cylinder	T1	Online mode (google meet)
4	2	Coulomb's theorem – Electronic potential – Relation between potential and field	T1	Online mode (google meet)
5	2	Capacitors – Expression for C of parallel plate spherical (outer sphere earthed) and cylindrical capacitors –	T1	Online mode (google meet)
6	2	Energy of charged capacitor	T1	Online mode (google meet)
7	1	Loss of energy due to sharing of charges.	T1	Online mode (google meet)
8	1	University Questions		Online mode (google meet)
9	1	ICT class		
10	2	Test		Online mode (google meet)
Unit 2				
11	1	Kirchhoff's laws –	T1	Black board teaching



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12	1	application of wheatstone's network –	T1	Black board teaching
13	1	sensitiveness of bridge – Carey Foster Bridge	T1	Black board teaching
14	1	Measurement of resistance and temperature – Coefficient of resistance	T1	Black board teaching
15	1	principle of potentiometer – Calibration of ammeter and voltmeter	T1	Black board teaching
16	1	low and high range – measurement of resistance using potentiometer.	T1	Black board teaching
17	1	University Questions		
18	1	ICT class		
19	1	Test		
Unit 3				
20	2	Torque on a current loop	T1	Black board teaching
21	1	mirror galvanometer, dead beat and ballistic	T1	Black board teaching
22	1	Current sensitiveness – voltage sensitiveness B.G. theory – damping correction	T1	Black board teaching
23	1	experiments for charge sensitiveness – comparison of emf's and comparison of	T1	Black board teaching



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		capacitors.		
24	1	Electro motive force generated in a coil rotating in a uniform magnetic field – R.M.S and mean values	T1	Black board teaching
25	1	LCR circuit – impedances - Series and Parallel resonant circuits	T1	Black board teaching
26	1	Power factor – Wattless current – Choke.	T1	Black board teaching
27	1	University questions		
28	1	ICT class		
29	2	Test		
Unit 4				
30	1	Junction diodes – Forward and Reverse bias – Diode characteristics – Types of diode	T1	Black board teaching
31	1	LED and Zener) Bridge rectifier using junction – II filter	T1	Black board teaching
32	1	Transistors- Characteristics (CE modes only) – Biasing and action of a single transistor (CE) amplifier	T1	Black board teaching
33	1	Frequency response Hartley oscillator – Modulation (qualitative study) –	T1	Black board teaching
34	1	Op-Amp and its characteristics – virtual earth – voltage amplifier in inverting mode - Op-Amp as adder and Subtractor	T1	Black board teaching
35	1	University questions		
36	1	ICT class		
37	1	Test		
Unit 5				
38	1	Binary number system – reason for using binary numbers	T1	Black board teaching



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39	2	binary to decimal and decimal to binary conversions – addition and subtraction of binary numbers.	T1	Black board teaching
40	2	Logic circuits – Boolean algebra – De Morgan's theorem – OR, AND, NOT	T1	Black board teaching
41	1	NOR and NAND Gates	T1	Black board teaching
42	2	NOR and NAND gates as universal building blocks – Ex-Or gates.	T1	Black board teaching
43	1	University questions		
44	1	ICT class		
45	2	Test		

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LESSON PLAN

PROGRAMME: B.Sc., Physics	SEMESTER/ YEAR: III Semester/2020-21
COURSE: ELECTRICITY & ELCTROMAGNETISM	COURSE CODE: SPHJC31
FACULTY 'S NAME: Mrs.G.Jenifer	TOTAL HOURS : 60 Hours

SYLLABUS

Objectives:

Course Objective

This course is designed to

- i. Define and calculate the electric potential for point charges and charged conductors and insulators.
- ii. Obtain the electric field from an electric potential.
- iii. Use faraday's law of induction to calculate motional emf.
- iv. Analyze resistors, inductors and capacitors in alternating current (AC) circuits using equations and phasors.

COURSE OUTCOME:

At the end of the course, the students will be capable of

- CO1 : Use the principle of superposition and law of gauss to calculate the electric forces and the intensity of the electric field in various electricity problems
- CO2 : Calculate the capacitance of capacitors with and without dielectrics.
- CO3 : Design and assemble apparatuses to measure electromagnetic Phenomena . Analyze and make meaningful comparisons between experiment and theory.



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CO4 : Understand the concepts of induction and self induction, to solve problems using Faraday's and Lenz's law and analyze and solve RL Circuits.

CO5 : Deal with Electromagnetic Oscillations, AC currents and analyze and solve RCL Circuits.

Unit –I

Coulomb's law- Electric field- Electric field due to a point charge- Electric flux- Gauss

law- its proof- Applications of Gauss law- Electric field due to a charged sphere- Electric field due to a plane sheet of charge- Coulomb's theorem- Mechanical force on the surface of a charged conductor- Electric potential- Relation between electric field and electric potential- Potential due to a charged spherical conductor.

Unit –II

Capacitance- Principle of capacitor- Expressions for the capacitance of i) spherical capacitor ii) cylindrical capacitor and iii) parallel plate capacitor with and without partly filled dielectrics- Energy of a capacitor-

Loss of energy when two charged conductors share the charges- Types of capacitors- fixed capacitor, variable capacitor, electrolytic capacitor and sliding capacitor.

Unit – III

Kirchhoff's laws- Application of Kirchhoff's laws to Wheatstone's bridge- sensitiveness of the bridge- Carey Foster's bridge- Determination of the resistance of the given wire with the necessary theory.

Potentiometer- principle of potentiometer- comparison of emfs of two cells using potentiometer- Determination of internal resistance of the cell using potentiometer- Calibration of voltmeter (low range and high range)- Calibration of ammeter.

Unit - IV

Faraday's laws of Electromagnetic induction, - Lenz's law – self inductance – energy stored in an inductance – Experiment to determine self inductance by Rayleigh method with theory – Mutual inductance – Determination of Mutual inductance using B.G. (with theory) Coefficient of Coupling – Eddy Currents.

Unit - V

Mean value of alternating emf – RMS value of the alternating current/voltage- Alternating current applied to LR, Cr and LCR circuits – Series Resonance Circuit – Parallel Resonance Circuit – Power in an



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A.C. Circuit – Wattless Current – Power factor – Q factor – choke – skin effect – A.C. bridges – Maxwell's bridge – Anderson's bridge and Owen's bridge.

Text Book:

1. Electricity & Electromagnetism – R.Murugesan

Reference Books:

1. Electricity and Magnetism by Sehgal, Chopra & Sehgal Sultan, Chand & Sons.1998.
2. Electricity and Magnetism 20th revised edition – Brijlal & Subramaniam , Ravi Offset Printers & Publishers Pvt., Ltd.,1997

COURSE PLAN- III SEMESTER 2020-21

S No	HOURS	TOPIC	BOOK	TEACHING MODE
UNIT-1				
1	3	Coulomb's law- Electric field- Electric field due to a point charge- Electric flux- Gauss law- its proof- Applications of Gauss law- Electric field due to a charged sphere-	T1	Chalk and Talk
2	3	Electric field due to a plane sheet of charge- Coulomb's theorem- Mechanical force on the surface of a charged conductor-	T1	Chalk and Talk
3	3	Electric potential- Relation between electric field and electric potential- Potential due to a charged spherical conductor	T1	Chalk and Talk
4	1	UNIVERSITY QUESTIONS		



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5	1	ICT CLASS		
6	1	TEST		
UNIT-2				
7	3	Capacitance- Principle of capacitor- Expressions for the capacitance of i) spherical capacitor ii) cylindrical capacitor and iii) parallel plate capacitor with and without partly filled dielectrics-	T1	Offline mode
8	3	Energy of a capacitor- Loss of energy when two charged conductors share the charges	T1	Offline mode
9	3	Types of capacitors- fixed capacitor, variable capacitor, electrolytic capacitor and sliding capacitor	T1	Offline mode
10	1	UNIVERSITY QUESTIONS		
11	1	ICT CLASS		
12	1	TEST		
UNIT-3				
13	2	Kirchhoff's laws- Application of Kirchhoff's laws to Wheatstone's bridge- sensitiveness of the bridge-	T1	Chalk and talk
14	2	Carey Foster's bridge- Determination of the resistance of the given wire with the necessary theory.	T1	Chalk and Talk
15	3	Potentiometer- principle of potentiometer- comparison of emfs of two cells using potentiometer-	T1	PPT



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16	2	Determination of internal resistance of the cell using potentiometer- Calibration of voltmeter(low range and high range)- Calibration ofammeter.		
17	1	UNIVERSITY QUESTIONS		
18	1	ICT CLASS		
19	1	TEST		
UNIT-4				
20	3	Faraday's laws of Electromagnetic induction, - Lenz's law – self inductance	T1	PPT
21	3	energy stored in an inductance – Experiment to determine self inductance by Rayleigh method with theory	T1	Chalk and Talk
22	3	Mutual inductance – Determination of Mutual inductance using B.G. (with theory) Coefficient of Coupling – Eddy Currents.	T1	Chalk and Talk
23	1	UNIVERSITY QUESTIONS		
24	1	ICT CLASS		
25	1	TEST		
UNIT-5				
26	2	Mean value of alternating emf – RMS value of the alternating current/voltage	T1	Chalk and Talk
27	3	Alternating current applied to LR, Cr and LCR circuits – Series Resonance Circuit – Parallel Resonance Circuit	T1	Chalk and Talk
28	2	Power in an A.C. Circuit – Wattless Current – Power factor – Q factor – choke	T1	Chalk and Talk



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29	2	skin effect – A.C. bridges – Maxwell's bridge – Anderson's bridge and Owen's bridge	T1	Chalk and Talk
30	1	UNIVERSITY QUESTIONS		
31	1	ICT CLASS		
32	1	TEST		

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LESSON PLAN

PROGRAMME: B.Sc. Computer Science	SEMESTER-5/ YEAR: 2020-21
COURSE: Fundamentals of Physics-I	COURSE CODE: SPHJN51
FACULTY 'S NAME: Dr. M. Sinduja, Mrs. G. Jenifer, Ms. B. Sivarnjani	TOTAL HOURS: 30 hrs Credit: 2

SYLLABUS

Objectives:

This course is designed to introduce some basic concept of physics like measurement of physical quantities, state of matter, kinds of energy and energy sources to students studying other than Physics

COURSE OUTCOME:

CO1: Understanding about basic concepts of physical quantities

CO2: Categorize various states of matter

CO3: Imparting knowledge in various kinds of energy

CO4: Students will gain knowledge about various types of renewable and non-renewable sources of energy

CO5: Understanding the basics of mirrors and lenses

Unit I

SI units- measurement of length, mass, time and other physical quantities- Dimensional formula for area, volume, density and force- use of dimension

Unit II

Matter- solid, liquid, gas and plasma- application of plasma- change of state-specific heat capacity-specific latent heat of ice and steam

Unit III

Kinds of energy- Mechanical energy, thermal energy, optical energy, sound energy, electrical energy, atomic and nuclear energy- conservation of energy



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Unit IV

Renewable and non-renewable source of energy- fossil fuel- coal – solar, wind- bio mass- OTEC

Unit V

Mirror, law of reflection- image formation (concave and convex lens)- law of refraction- Image formation (concave and convex lens)- Defects of eye and rectification

Text Book:

- T1. Mechanics- D.S.Mathur- S. Chand and Co 2002
- T2. Properties of matter- D. S. Mathur- S. Chan and co 2002
- T3. Properties of matter- Brijlal Subramanian- S. Chand and Co 2006

Reference

- R1: fundamentals of Physics- G. Jenifer- My design and print media 2021

COURSE PLAN- VIst SEMESTER 2020-21

S No	HOURS	TOPIC	BOOK	TEACHING MODE
UNIT-1				
1	1	SI units- measurement of length, mass, time and other physical quantities	R1 (1)	Online (Google meet)
2	1	Dimensional formula for area, volume, density and force	R1 (5)	Online (Google meet)
3	1	use of dimension	R1 (8)	Online (Google meet)
4	3	UNIVERSITY QUESTIONS		
		ICT CLASS		
		TEST		
UNIT-2				
5	1	Matter- solid, liquid, gas and plasma- application of plasma	R1 (11)	Online (Google meet)
6	1	change of state-specific heat capacity	R1 (17)	Online (Google meet)
7	1	specific latent heat of ice and steam	R1 (18)	Online (Google meet)
8	3	UNIVERSITY QUESTIONS		



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		ICT CLASS		
		TEST		
UNIT-3				
9	1	Kinds of energy- Mechanical energy, thermal energy, optical energy	R1 (21)	Black board teaching
10	1	sound energy, electrical energy, atomic and nuclear energy	R1 (25)	Black board teaching
11	1	conservation of energy	R1 (28)	Black board teaching
12	3	UNIVERSITY QUESTIONS		
		ICT CLASS		
		TEST		
13	1	Renewable and non-renewable source of energy	R1 (31)	Black board teaching
14	1	fossil fuel- coal – solar, wind	R1 (33)	Black board teaching
15	1	bio mass- OTEC	R1 (38)	Black board teaching
16	3	UNIVERSITY QUESTIONS		
		ICT CLASS		
		TEST		
17	1	Mirror, law of reflection- image formation (concave and convex lens)	R1 (43)	Black board teaching
18	1	law of refraction- Image formation (concave and convex lens)	R1 (48)	Black board teaching
19	1	Defects of eye and rectification	R1 (53)	Black board teaching
20	3	UNIVERSITY QUESTIONS		
		ICT CLASS		
		TEST		

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LESSON PLAN

PROGRAMME: B.Sc.,PHYSICS	SEMESTER/ YEAR: 5th Sem, 2020-21
COURSE: Linear Integrated Circuits	COURSE CODE: SELJA51
FACULTY'S NAME: Mrs. N.ShamimaBanu	TOTAL HOURS: 60

SYLLABUS

Objective: This course enables to understand the basic concepts of Operational Amplifier and its various applications and to learn the applications of IC 555 Timer

COURSE OUTCOME:

CO1: Explain the basic concepts for Operational Amplifier

CO2: Discuss the applications of Operational Amplifier in Integrator, Differentiator and Instrumentation Amplifier

CO3: Explains the applications of Voltage follower, Clipper and Clamper and Precision Rectifier

CO4: Develop the knowledge about Oscillators and Filters

CO5: Discuss the concepts of IC555 Timer and its applications

Unit I: OPERATIONAL AMPLIFIER

Functional Block diagram Characteristics of ideal operational amplifier. OPERATIONAL AMPLIFIER CHARACTERISTICS – Open loop gain –CMRR- offset current- Input and output offset voltages –Offset Compensation techniques-frequency response characteristics-Stability – Limitations – Frequency compensation – Slew rate – Transfer characteristics

Unit II: APPLICATIONS OF OPERATIONAL AMPLIFIER I

Inverting and non-inverting amplifiers –Voltage follower-Summing amplifier –Differential amplifier-Instrumentation amplifier – Integrator and Differentiator -Voltage to current, Current to voltage converters

Unit III: APPLICATION OF OPERATIONAL AMPLIFIER II

Sinusoidal oscillator-Active filter-Design of low pass-high pass-wide band pass-narrow band pass-notch and band stop filters.



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Unit IV: APPLICATION OF OPERATIONAL AMPLIFIER III

Voltage regulator-Comparators-Zero crossing detector-Sample and hold circuit-Precision rectifier-Active peak detector-Clipper and Clamper-Logarithmic and Exponential amplifier

Unit V: IC 555 Timer

Timer functional block diagram and description – Monostable - Astable –bistable operations – Voltage Controlled Oscillator- Digital to Analog convertor- Comparator-Voltage to Frequency Convertor- Frequency to Voltage convertor

TEXT BOOKS:

1. "Op-Amps and linear integrated circuits", Gaykwad A.R, Prentice Hall of India, Third edition, New Delhi, 1993.
2. „Linear Integrated Circuits“, RoyChoudhury and Shail Jain , Wiley Eastern Ltd.1991

Reference:

Compiled Material

COURSE PLAN- 5th SEMESTER 2020-21

S No	HOURS	TOPIC	BOOK	TEACHING MODE
UNIT-1				
1	1	Functional Block diagram Characteristics of ideal operational amplifier	T1, CM	Online Mode
2	2	OPERATIONAL AMPLIFIER CHARACTERISTICS – Open loop gain – CMRR	T1, CM	Online Mode
3	1	offset current- Input and output offset voltages	T1, CM	Black Board Teaching
4	1	Offset Compensation techniques- frequency response characteristics	T1, CM	Online Mode
5	2	Stability – Limitations- Frequency compensation –	T1, CM	Online Mode
6	2	Slew rate – Transfer characteristics	T1, CM	Black Board Teaching



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7	1	UNIVERSITY QUESTIONS		
8	1	ICT CLASS		
9	1	TEST		
UNIT-2				
10	1	Inverting and non-inverting amplifiers	T1, CM	Black Board Teaching
11	2	Voltage follower-Summing amplifier	T1, CM	Online Mode
12	1	Differential amplifier	T1, CM	Online Mode
13	2	Instrumentation amplifier	T1, CM	Black Board Teaching
14	2	Integrator and Differentiator	T1, CM	Online Mode
15	1	Voltage to current, Current to voltage converters	T1, CM	Black Board Teaching
16	1	UNIVERSITY QUESTIONS		
17	1	ICT CLASS		
18	1	TEST		
UNIT-3				
19	2	Sinusoidal oscillator	T2, CM	Online Mode
20	1	Active filter	T2, CM	Online Mode
21	2	Design of low pass	T2, CM	Black Board Teaching
22	1	high pass	T2, CM	Online Mode
23	1	wide band pass	T2, CM	Black Board Teaching
24	1	narrow band pass	T2, CM	Online Mode
25	1	notch and band stopfilters	T2, CM	Online Mode
26	1	UNIVERSITY QUESTIONS		
27	1	ICT CLASS		
28	1	TEST		
UNIT-4				
29	1	Voltage regulator	T2, CM	Online Mode
30	1	Comparators	T2, CM	Online Mode
31	2	Zero crossing detector-Sample and hold circuit	T2, CM	Black Board Teaching
32	2	Precision rectifier-Active peak detector-	T2, CM	Online Mode



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33	2	Clipper and Clamper	T2, CM	Online Mode
34	1	Logarithmic and Exponential amplifier		
35	1	UNIVERSITY QUESTIONS		
36	1	ICT CLASS		
UNIT-5				
38	1	Timer functional block diagram and description	T1, CM	Online Mode
39	2	Monostable – Astable- bistable operations	T1, CM	Online Mode
40	2	Voltage Controlled Oscillator	T1, CM	Black Board Teaching
41	1	Digital to Analog convertor	T1, CM	Online Mode
42	1	Comparator	T1, CM	Online Mode
43	2	Voltage to Frequency Convertor- Frequency to Voltage convertor	T1, CM	Black Board Teaching
44	1	UNIVERSITY QUESTIONS		
45	1	ICT CLASS		
46	1	TEST		

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LESSON PLAN

PROGRAMME: B.Sc., Physics	SEMESTER/ YEAR: I / 2020-21
COURSE: MECHANICS&PROPERTIES OF MATTER	COURSE CODE: SPHJC11
FACULTY'S NAME: Mrs.N.SUBHASHREE	TOTAL HOURS : 60 Hours

Course Objective

This course is designed to

- study the motion of objects, understand the laws of motion and laws of gravitation.
- know the principle of conservation of momentum, energy and their consequences.
- identify the characteristics of solids and fluids in terms of their properties

Course Outcomes

At the end of the course, the students will be capable of

CO	Course Outcome
CO1	Develop knowledge and understanding of the historical development of mechanics, some implications of the principle of mechanics
CO2	Apply knowledge of the dynamics of rigid bodies, conservation of energy ,torque
CO3	Analyze the variation of 'g' with latitude.altitude,depth and rotation of earth



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CO4	Work on the experimental design and studies on project topics such as Young's modulus for different types of wood
CO5	To arrive at knowledge of fluidity, wide applications of Bernoulli's equation and variation of surface tension

SEMESTER-1

CREDIT - 4

MECHANICS AND PROPERTIES OF MATTER

Unit I: Laws of motion

Newton's laws of motion – Force- Impulse of a force - law of conservation of linear momentum – Collision – Elastic and in elastic collision – (Fundamental laws of impact) – Newton's law of impact – coefficient of restitution – Impact of a smooth sphere on a fixed plane – Direct impact between two smooth spheres – Oblique impact between two smooth spheres – Calculation of final velocities of the spheres – Loss of K.E due to impact.

Unit II Dynamics of rigid body

Moment of inertia – Theorems of perpendicular and parallel axes – M.I of a circular ring, disc, solid sphere, hollow sphere and cylinder about all axes – angular velocity, angular momentum and K.E of rotation – Torque and angular acceleration – Relation between them – Expression for a acceleration of a body rolling down an inclined body without slipping.

Unit III Gravitation

Newton's law of gravitation – G by Cavendish's method – Mass and density of earth – Acceleration due to gravity – Variation of g with altitude, depth and rotation of earth - Value of g at poles and equator.

Gravitational field – Gravitational potential – Gravitational potential due to spherical shell – Gravitational potential due to a solid sphere (inside and outside)

Unit IV Elasticity

Elasticity – Stress, Strain - Hooke's law – Elastic moduli – Poisson's ratio – Beams – bending of beams – Expression for bending moment – Theory of uniform and non – uniform bending - Determination of young's modulus by uniform and



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non- uniform bending methods

– Torsion of a body – Expression for couple per unit twist – Work done in twisting a wire – Torsional oscillations of a body - Rigidity modulus by dynamic torsion method (Torsional pendulum)

Unit V Surface Tension and Viscosity

Surface tension – definition – Molecular forces – Explanation of surface tension on kinetic theory – Surface energy – work done in increasing the area of a surface – Excess pressure inside a curved liquid surface – Excess pressure inside a liquid drop and soap bubble.

Viscosity – Co efficient of viscosity – Streamlined and turbulent motion – critical velocity – Bernoulli's theorem – Proof – Applications – Venturimeter – Pitot tube

Text Books

1. Properties of matter – R. Murugesan – S. Chand & Co.,2004.

COURSE PLAN- 1st SEMESTER 2020-21

S No	HOURS	TOPIC	BOOK	TEACHING MODE
UNIT-1				
1	1	Newton's laws of motion – Force- Impulse of a force	T1	On line mode
2	1	law of conservation of linear momentum –Collision – Elastic and in elastic collision	T1	On line mode
3	1	Newton's law of impact – coefficient of restitution	T1	On line mode
4	1	Impact of a smooth sphere on a fixed plane	T1	On line mode
5	2	Direct impact between two smooth spheres	T1	Block board teaching
6	2	Oblique impact between two smooth spheres	T1	Block board teaching



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7	1	Loss of K.E due to impact.	T1	On line mode
8	1	UNIVERSITY QUESTIONS		
9	1	ICT CLASS		
10	1	TEST		
UNIT-2				
11	2	Moment of inertia – Theorems of perpendicular and parallel axes	T1	On line mode
12	1	M.I of a circular ring, disc	T1	Block board teaching
13	2	M.I of a solid sphere, hollow sphere and cylinder about all axes	T1	On line mode
14	1	angular velocity, angular momentum and K.E of rotation	T1	On line mode
15	1	Torque and angular acceleration	T1	On line mode
16	1	Relation between them	T1	Block board teaching
17	1	Expression for a acceleration of a body rolling down an inclined body without slipping.	T1	Block board teaching
18	1	UNIVERSITY QUESTIONS		
19	1	ICT CLASS		
20	1	TEST		
UNIT-3				
21	1	Newton's law of gravitation	T1	On line mode
22	1	G by Boy's method	T1	On line mode
23	1	Mass and density of earth – Acceleration due to gravity	T1	On line mode
24	2	– Variation of g with altitude , depth and rotation of earth - Value of g at poles tand equator.	T1	On line mode
25	1	Gravitational field – Gravitational	T1	Block board teaching



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		potential		
26	1	– Gravitational potential due to spherical shell	T1	Block board teaching
27	2	Gravitational potential due to a solid sphere (inside and outside)	T1	Block board teaching
28	1	UNIVERSITY QUESTIONS		
29	1	ICT CLASS		
30	1	TEST		
UNIT-4				
31	1	Elasticity – Stress, Strain - Hooke's law – Elastic moduli – Poisson's ratio	T1	Block board teaching
32	2	Beams – bending of beams – Expression for bending moment	T1	Block board teaching
33	1	Theory of uniform and non – uniform bending	T1	On line mode
34	2	Determination of young 's modulus by uniform and non- uniform bending methods	T1	On line mode
35	1	Torsion of a body – Expression for couple per unit twist	T1	On line mode
36	1	Work done in twisting a wire – Torsional oscillations of a body	T1	Block board teaching
37	1	- Rigidity modulus by dynamic torsion method (Torsional pendulum)	T1	On line mode
38	1	UNIVERSITY QUESTIONS		
39	1	ICT CLASS		
40	1	TEST		
UNIT-5				
41	1	Surface tension – definition – Molecular forces	T1	On line mode



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42	1	Explanation of surface tension on kinetic theory – Surface energy	T1	On line mode
43	2	work done in increasing the area of a surface – Excess pressure inside a curved liquid surface	T1	On line mode
44	1	Excess pressure inside a liquid drop and soap bubble.	T1	Block board teaching
45	1	Viscosity – Co efficient of viscosity – Streamlined and turbulent motion – critical velocity	T1	On line mode
46	2	Bernoullis theorem	T1	Block board teaching
47	1	Applications – Venturimeter – Pitot tube	T1	Block board teaching
48	1	UNIVERSITY QUESTIONS		
49	1	ICT CLASS		
50	1	TEST		
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LESSON PLAN

PROGRAMME: B.Sc., MATHS & CHEM	SEMESTER/ YEAR: I / 2020-21
COURSE: Mechanics, Properties of Matter & Sound	COURSE CODE: SPHJA11
FACULTY'S NAME: Mrs. N.Shamima Banu	TOTAL HOURS: 60

SYLLABUS

OBJECTIVE: This course is designed to

- i. Create an exposure to the Nature of forces and energy
- ii. Interpret Kepler's law of motion, Variation of Gravity
- iii. Deduce Young's modulus of Elasticity and learn about Viscosity
- iv. Enable students to understand the properties of Ultrasonics and its applications

COURSE OUTCOME:

CO1: Explains the types of forces and expression for potential and kinetic energy

CO2: Discuss Rotational motion and Moment of inertia for Various dimensions

CO3: Describe Kepler's law of planetary motion and analyse the variation of g with latitude, altitude and depth

CO4: Explain the types of elasticity and compute the Young's modulus of a beam

CO5: Discuss the properties of waves and Ultrasonics properties and its applications

Unit I:

Forces in nature – Central forces – Gravitational and electromagnetic – Conservative and Non-Conservative forces – Examples – Nuclear force – Friction – Angle of friction – Motion of bodies along an inclined plane – Work done by a force – Work done by a varying force – Expression for Kinetic energy – Expression for potential energy – Power.

Unit II:

Angular velocity – Normal acceleration (no derivation) – Centrifugal and Centripetal forces – Torque and angular acceleration – Work and power in rotational motion – Angular momentum – K.E of rotation – Moment of Inertia – Laws of parallel and Perpendicular axes theorems – M.I of circular ring, Circular Disc, Solid sphere, hollow sphere and cylinder.



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Unit III:

Kepler's laws of planetary motion – Laws of Gravitation – Boy's method for G – Compound pendulum – Expression for period – Experiment to find g - Variation of g with latitude, altitude and depth – Artificial Satellites.

Unit IV:

Elastic moduli – Poisson's ratio – beams – Expression for bending moment – Determination of Young's modulus by uniform and non-uniform bending – I section girders. Torsion – Expression for couple per unit twist - Work done in twisting – Torsional pendulum – Derivation Poiseuille's formula (analytical method) – Bernoulli's theorem – Proof of Application – Venturimeter – Pitot tube.

Unit V:

Simple harmonic motions – Progressive Waves Properties – Composition of Two S.H.M and beats stationary waves – Properties – Melde's experiments for the frequency of electrically maintained tuning fork – Transverse and longitudinal modes - Acoustics – Ultrasonic – Properties and Application

Text Book

1. Mechanics Properties of Matter & Sound- R. Murugesan

Reference Books

1. Mechanics by D.S. Mathur – S. Chand & Co., 2008.
2. Properties of matter by Brijlal & N. Subramanyam 2004, S. Chand.
3. A Text Book of Sound by Brijlal & N. Subramanyam, S. Chand & Co 2004.
4. University Physics by Sears Zemansky and Gound, 6th edition (Naresa Publishing House, Chennai 1996)

COURSE PLAN- 1st SEMESTER 2020-21

S No	HOURS	TOPIC	BOOK	TEACHING MODE
UNIT-1				
1	1	Forces in nature – Central forces	T1, R1	Online Mode
2	2	Gravitational and electromagnetic forces	T1, R1	Online Mode
3	1	Conservative and Non-Conservative forces – Examples – Nuclear force	T1, R1	Black Board Teaching
4	2	Friction – Angle of friction – Motion of bodies along an inclined plane	T1, R1	Online Mode



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5	1	Work done by a force – Work done by a varying force	T1, R1	Online Mode
6	2	Expression for Kinetic energy – Expression for potential energy – Power	T1, R1	Black Board Teaching
7	1	UNIVERSITY QUESTIONS		
8	1	ICT CLASS		
9	1	TEST		
UNIT-2				
10	1	Angular velocity – Normal acceleration (no derivation)	T1, R1	Black Board Teaching
11	1	Centrifugal and Centripetal forces	T1, R1	Online Mode
12	2	Torque and angular acceleration – Work and power in rotational motion	T1, R1	Online Mode
13	1	Angular momentum – K.E of rotation – Moment of Inertia	T1, R1	Black Board Teaching
14	2	Laws of parallel and Perpendicular axes theorems	T1, R1	Online Mode
15	1	M.I of circular ring, Circular Disc, Solid sphere	T1, R1	Black Board Teaching
16	1	hollow sphere and cylinder		
17	1	UNIVERSITY QUESTIONS		
18	1	ICT CLASS		
19	1	TEST		
UNIT-3				
20	1	Kepler's laws of planetary motion – Laws of Gravitation	T1, R2	Online Mode
21	2	Boy' method for G	T1, R2	Black Board Teaching
22	2	Compound pendulum	T1, R2	Online Mode
23	1	Expression for period – Experiment to find g	T1, R2	Black Board Teaching
24	2	Variation of g with latitude, altitude and depth	T1, R2	Online Mode
25	1	Artificial Satellites	T1, R2	Online Mode
26	1	UNIVERSITY QUESTIONS		
27	1	ICT CLASS		
28	1	TEST		



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UNIT-4				
29	1	Elastic moduli – Poisson's ratio	T1, R1	Online Mode
30	1	beams – Expression for bending moment	T1, R1	Online Mode
31	2	Determination of Young's modulus by uniform and non-uniform bending –	T1, R1	Black Board Teaching
32	2	I section girders-. Torsion – Expression for couple per unit twist - Work done in twisting	T1, R1	Online Mode
33	1	Torsional pendulum – Derivation Poiseuille's formula (analytical method) –	T1, R1	Online Mode
34	1	Bernoulli's theorem – Proof of Application –	T1, R1	Black Board Teaching
35	1	Venturimeter – Pitot tube.	T1, R1	Online Mode
36	1	UNIVERSITY QUESTIONS		
37	1	ICT CLASS		
38	1	TEST		

UNIT-5				
39	2	Simple harmonic motions – Progressive Waves Properties —	T1, R3	Online Mode
41	2	Composition of Two S.H.M and beats stationery waves – Properties	T1, R3	Online Mode
42	2	Melde's experiments for the frequency of electrically maintained tuning fork	T1, R3	Online Mode
43	1	Transverse and longitudinal modes	T1, R3	Online Mode
44	2	Acoustics – Ultrasonic – Properties and Application	T1, R3	Black Board Teaching
45	1	UNIVERSITY QUESTIONS		
46	1	ICT CLASS		
47	1	TEST		

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LESSON PLAN

PROGRAMME: B.Sc.	SEMESTER-5/ YEAR: 2020-21
COURSE: Modern Physics	COURSE CODE: SPHJC51
FACULTY 'S NAME: Dr. A. J. Naga jothi	TOTAL HOURS: 60 hrs Credit: 4

SYLLABUS

Objectives:

This course is designed to give an introductory account of the basic principles of Atomic physics, imparting knowledge on the theory of relativity, introduce the origin of Quantum theory

COURSE OUTCOME:

CO1: Students will gain knowledge about different atom models

CO2: Ability to use modern instrumentation and laboratory devices

CO3: Imparting knowledge on the theory of relativity

CO4: Impart knowledge about the origin of quantum theory

CO5: Acquire the knowledge on the application of the Schrodinger equation based on quantum theory

Unit I

Bohr atom model –Bohr's theory of Hydrogen atom- Bohr - Sommerfeld theory – Somerfield's relativistic atom model – Critical potentials- Experimental determination Davis and Goucher's experiment- Explanation for the fine structure of H_{α} line- Relativistic variation of atomic mass– Vector atom model– Quantum numbers – coupling schemes – Pauli's exclusion principle – Arrangement of electrons in atoms- Magnetic dipole moment due to orbital motion of the electron – magnetic dipole moment due to electron spin - Stern and Gerlach experiment.

Unit II

Optical spectra – spectral terms and notations – selection rules -Fine structure of sodium D lines – Zeeman effect – theory and experiment – quantum theory of Zeeman effect Anomalous Zeeman effect – Stark effect. X – Ray spectra- Duane and Hunt law- Moseley's law- Bragg's law- Bragg's X-ray spectrometer- measurement of wave length- Compton effect- theory and experimental verification.



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Unit III

Frames of reference- inertial frames of reference- Galilean transformation- Newtonian relativity- Michelson Morley experiment- Postulates of special theory of relativity- Lorentz transformation- Lorentz- Fitzgerald contraction- time dilation- relativistic addition of velocities- variation of mass with velocity- Mass-energy equivalence- Relation between total energy, rest mass energy and momentum

Unit IV

Planck's quantum theory of radiation – Dual nature of matter and radiation – De- Broglie's hypothesis of matter waves – Expression for wavelength – Davisson's and Germer experiment – G. P. Thomson experiment with relativistic correction- Concept of wave packet– Group velocity, wave velocity and their relation – Heisenberg's Uncertainty principle – Experimental illustration

Unit V

Basic postulates of wave mechanics – Derivation of time dependent and time independent Schrodinger's wave equations– wave function - Physical significance of wave function– Eigen functions and Eigen values. Schrodinger equation for a free particle in one dimensional potential well- Its Eigen function and Eigen value- Applications of Schrodinger wave equation- Particle in one dimensional Box –Barrier penetration problem - Linear harmonic oscillator – The rigid rotator.

Text Book:

T1. Modern Physics (sixth revised edition 1998 – R. Murugesan, S. Chand & Company Ltd.)

Reference book:

- R1. Modern Physics: Seigal Chopra and Seigal
R2. Quantum Mechanics : Sathyaprakash, Ratan Prakasan Mandir 1994

COURSE PLAN- V SEMESTER 2020-21

S No	HOURS	TOPIC	BOOK	Page number
UNIT-1				
1	2	Bohr atom model –Bohr's theory of Hydrogen atom- Bohr - Sommerfeld theory – Somerfield's relativistic atom model	T1	Online mode (google meet)
2	2	Critical potentials- Experimental determination Davis and Goucher's experiment	T1	Online mode (google meet)



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3	2	- Explanation for the fine structure of H_{α} line- Relativistic variation of atomic mass	T1	Online mode (google meet)
4	2	Vector atom model– Quantum numbers – coupling schemes	T1	Online mode (google meet)
5	2	Pauli's exclusion principle – Arrangement of electrons in atoms	T1	Online mode (google meet)
6	2	Magnetic dipole moment due to orbital motion of the electron	T1	Online mode (google meet)
7	1	magnetic dipole moment due to electron spin - Stern and Gerlach experiment.	T1	Online mode (google meet)
8	1	University Questions		Online mode (google meet)
9	1	ICT class		
10	2	Test		Online mode (google meet)
Unit 2				
11	1	Optical spectra – spectral terms and notations – selection rules	T1	Black board teaching
12	1	Fine structure of sodium D lines –Zeeman effect – theory and experiment	T1	Black board teaching
13	1	Anomalous Zeeman effect – Stark effect. X – Ray spectra- Duane and Hunt law- Moseley's law-	T1	Black board



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				teaching
14	1	Bragg's law- Bragg's X-ray spectrometer- measurement of wave length	T1	Black board teaching
15	1	quantum theory of Zeeman effect	T1	Black board teaching
16	1	Compton effect- theory and experimental verification.	T1	Black board teaching
17	1	University Questions		
18	1	ICT class		
19	2	Test		
Unit 3				
20	2	Frames of reference- inertial frames of reference- Galilean transformation	T1	Black board teaching
21	1	Newtonian relativity- Michelson Morley experiment	T1	Black board teaching
22	1	Postulates of special theory of relativity- Lorentz transformation- Lorentz- Fitzgerald contraction	T1	Black board teaching
23	1	time dilation- relativistic addition of velocities- variation of mass with velocity	T1	Black board teaching
24	1	Mass-energy equivalence- Relation between total energy, rest mass energy and momentum	T1	Black board teaching
25	1	University questions		
26	1	ICT class		
27	2	Test		
Unit 4				
28	1	Planck's quantum theory of radiation – Dual nature of matter and radiation	T1	Black board teaching
29	1	De- Broglie's hypothesis of matter waves – Expression for wavelength – Davisson's and Germer experiment	T1	Black board



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				teaching
30	1	G. P. Thomson experiment with relativistic correction	T1	Black board teaching
31	2	Heisenberg's Uncertainty principle – Experimental illustration	T1	Black board teaching
32	1	Concept of wave packet– Group velocity, wave velocity and their relation	T1	Black board teaching
33	1	University questions		
34	1	ICT class		
35	2	Test		
Unit 5				
36	1	Basic postulates of wave mechanics	T1	Black board teaching
37	2	Derivation of time dependent and time independent Schrodinger's wave equations– wave function - Physical significance of wave function	T1	Black board teaching
38	2	Eigen functions and Eigen values. Schrodinger equation for a free particle in one dimensional potential well- Its Eigen function and Eigen value	T1	Black board teaching
39	1	Applications of Schrodinger wave equation- Particle in one dimensional Box –Barrier penetration problem	T1	Black board teaching
40	2	Linear harmonic oscillator – The rigid rotator	T1	Black board teaching
41	1	University questions		
42	1	ICT class		
43	2	Test		

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LESSON PLAN

PROGRAMME: B.Sc., Physics	SEMESTER/ YEAR: II/2021-22
COURSE: Astro Physics	COURSE CODE: SPHJS21
FACULTY 'S NAME: Dr.M.Sindhuja	TOTAL HOURS : 30 hours

SYLLABUS

Objectives:

This course is designed to

- i. Acquire basic knowledge of physics beyond the earth .
- ii. Provide some exposure to astronomy in our day to day life, discussed the concepts and their terms.

COURSE OUTCOME:

CO1: Recognize the concepts behind astronomy.

CO2: Categorizing the astronomical instruments with their standard terms.

CO3: Describe the structure of planets like sun.

CO4: Deals with stars ,types of stars and its classification.

CO5: Defining the galaxies and clusters.

Unit I

Birth of Modern Astronomy – Geocentric and Heliocentric — Celestial sphere –Kepler's laws of planetary motion – Newtonian gravitation- Planets-Terrestrial and Jovian planets (Planets individual description is not required in detail) - Asteroids- Meteoroids- Comets.

Unit II

The orientation of Earth in space- Arc and time units- local time-Standard time- Elements of the telescope-Properties of images - Kinds of Optical telescopes- Refracting and Reflecting telescopes- Radio telescope- Spectrograph – limitations.



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Unit III

Sun- physical properties- composition- Core- Nuclear reactions- Photosphere- Chromo sphere- Corona- Sunspots- Sunspot cycle-Solar wind- Auroras.

Unit IV

Classification of Stars-The Harvard Classification system-Hertzprung-Russel Diagram-Luminosity of a Star-Stellar Evolution-White Dwarfs-Neutron stars-Black holes- Physics of Black Holes.

Unit V

Galaxy nomenclature-Types of Galaxies-Spiral-Elliptical-irregular galaxies- Milky Way and its structure- Star clusters-Galactic clusters-Pulsars.

Text Book:

1. A.Mujiber Rahman, "Introduction to Astrophysics", KAMS Publications, Uthamapalayam.
2. Niclolas. A. Pananides and Thomas Arny, 1979, "Introductory Astronomy", Addison Wesley Publ.Co.

COURSE PLAN- II SEMESTER 2021-22

S.No	HOURS	TOPIC	BOOK	TEACHING MODE
UNIT-1				
1.	1	Birth of Modern Astronomy – Geocentric and Heliocentric	T1-1,2,7 to 10	Lecture mode
2.	2	Celestial sphere –Kepler’s laws of planetary motion	T1- 4 to 6,13 to 16	Blackboard mode
3.	1	Newtonian gravitation- Planets- Terrestrial and Jovian planets	T1-16 to 19	Lecture mode
4.	1	Asteroids- Meteoroids- Comets	T1-19 to 24	PPT
5.	1	UNIVERSITY QUESTIONS		
6.		ICT CLASS		



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7.		TEST		
UNIT-2				
8.	2	The orientation of Earth in space- Arc and time units- local time- Standard time	T1-27 to 32	Blackboard
9.	1	Elements of the telescope- Properties of images	T1-32 to 35	PPT
10.	1	Kinds of Optical telescopes- Refracting and Reflecting telescopes	T1-35 to 41	Videos
11.	1	Radio telescope- Spectrograph – limitations.	T1-42 to 47	Blackboard
12.		UNIVERSITY QUESTIONS		
13.	1	ICT CLASS		
14.	1	TEST		
UNIT-3				
15.	1	Sun- physical properties- composition- Core- Photosphere, Chromo sphere	T1-50 to 55	Blackboard
16.	1	Corona, Nuclear reactions	T1-56 to 61	Blackboard
17.	1	Sunspots- Sunspot cycle	T1-61 to 65	Lecture mode
18.	1	Solar wind- Auroras.	T1-66 to 69	Videos
19.	1	UNIVERSITY QUESTIONS		
20.	1	ICT CLASS		
21.		TEST		
UNIT-4				
22.	1	Classification of Stars-The Harvard Classification system-Hertzprung- Russel Diagram	T1-77 to 81	PPT
23.	1	Luminosity of a Star-Stellar Evolution	T1-81 to 88	Blackboard
24.	1	White Dwarfs-Neutron stars	T1-88 to 93	Videos
25.	1	Black holes- Physics of Black Holes	T1- 93 to 96	Lecture mode
26.	1	UNIVERSITY QUESTIONS		
27.		ICT CLASS		
28.	1	TEST		
UNIT-5				



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29.	2	Galaxy nomenclature-Types of Galaxies, -Elliptical	T1-100 to 102	Blackboard
30.	1	Spiral, irregular galaxies	T1-103 to 105	Blackboard
31.	1	Milky Way and its structure	T1-105 to 109	Videos
32.	1	Star clusters-Galactic clusters-Pulsars.	T1-109 to 114	Lecture mode
33.	1	UNIVERSITY QUESTIONS		
34.	1	ICT CLASS		
35.		TEST		

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LESSON PLAN

PROGRAMME: Bsc Physics	SEMESTER/ YEAR: II/2021-22
COURSE: COMMUNICATIVE ENGLISH II	COURSE CODE: UCELE21
FACULTY 'S NAME: F.Monica Berlin	TOTAL HOURS: 90 HRS

SYLLABUS

Objectives:

1. To enhance the learner`s communication skills by giving adequate exposure in LSRW and related sub-skills.
2. To help the learners recognize and operate in various styles & registers in English

COURSE OUTCOME:

CO1: Develop vocabulary and improve the accuracy in grammar.

CO2: Produce words with right pronunciation.

CO3: students will develop knowledge, skills and judgement around human communication that improve their ability to collaboratively work with others.

CO4: demonstrate positive group communication exchanges.

CO5: Create written text in a variety of literary genres.

Unit I

(20 hrs)

1. Listening and speaking: a) listening and responding to complaints b) Listening to problems & offering solutions
2. Reading & Writing: a) Reading aloud b) writing a paragraph on proverbial expression
3. Word power/ Vocabulary: Synonyms& antonyms
4. Grammar in Context: Adverbs & prepositions

Unit II

(20 hrs)

1. Listening and speaking: a) listening to famous speeches & poems b. making short speeches.
2. Reading & Writing: a) writing opinion pieces b) reading poetry
3. Word power/ Vocabulary: idioms & phrases
4. Grammar in Context: Conjunctions & interjections

Unit III

(16 hrs)

1. Listening and speaking: a) listening to TED talks b. Making short presentation. C. interaction during & after the presentation



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2. Reading & Writing: a) writing e-mails of complaint b) reading aloud famous speeches
3. Word power/ Vocabulary: one word substitution
4. Grammar in Context: sentence pattern

Unit IV

(16 hrs)

1. Listening and speaking: a. Participating in meeting
2. Reading & Writing: a) Reading Visual Text –Advertisement. b) preparing first draft of short assignments.
3. Word power/ Vocabulary: Denotation & Connotation
4. Grammar in Context: sentence type

UNIT V

(18 hrs)

1. Listening and speaking: a. informal interview for feature writing b) listening & responding to questions at a formal interview.
2. Reading & Writing: a) Writing letters of application b) Reader`s theatre
3. Word power/ Vocabulary: Collocation
4. Grammar in Context: Working with clauses

COURSE PLAN- II SEMESTER 2020-21

S No	HOURS	TOPIC	BOOK	TEACHING MODE	PAGE NO
UNIT-1					
1.	2	Listening and speaking introduction	Prescribed Text	LECTURE	Pg. Nb. 7
2.	2	listening and responding to complaints	Prescribed Text	LECTURE	Pg. Nb.7
3.	3	Listening to problems & offering solutions	Prescribed Text	VIDEO CLASS	Pg. Nb.14
4.	3	Reading & Writing: a) Reading aloud b) writing a paragraph on proverbial expression	Prescribed Text	LECTURE	Pg. Nb.17 Pg. Nb.19
5.	3	word power/ Vocabulary: Synonyms& antonyms	Prescribed Text	LECTURE	Pg. Nb.24
6.	3	Grammar in Context: Adverbs & prepositions	Prescribed Text	LECTURE	Pg. Nb.32
7.	2	UNIVERSITY QUESTIONS			
8.	1	ICT CLASS			
9.	1	TEST			
UNIT-2					
11.	2	Listening and speaking: a) listening to famous speeches & poems	Prescribed Text	VIDEO CLASS	Pg. Nb.55 Pg. Nb.65



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12.	2	Reading & Writing: a) writing opinion pieces	Prescribed Text	LECTURE	Pg. Nb.69
13.	3	word power/ Vocabulary: idioms & phrases	Prescribed Text	LECTURE	Pg. Nb.74
14.	3	Grammar in Context: Conjunctions & interjections	Prescribed Text	LECTURE /PPT	Pg. Nb.81
15.	2	UNIVERSITY QUESTIONS			
16.	1	ICT CLASS			
17.	1	TEST			
18.	UNIT-3				
19.	3	listening to TED talks b. Making short presentation.	Prescribed Text	LECTURE	Pg. Nb.93
20.	2	Interaction during & after the presentation	Prescribed Text	LECTURE/ PPT	Pg. Nb.102
21.	3	writing e-mails of complaint	Prescribed Text	LECTURE	Pg. Nb.104
22.	2	Reading aloud famous speeches	Prescribed Text	VIDEO CLASS/PPT	Pg. Nb.106
23.	1	Word power/ Vocabulary: one word substitution	Prescribed Text	LECTURE/PP T	Pg. Nb.111
24.	1	Grammar in Context: sentence pattern	Prescribed Text	LECTURE /PPT	Pg. Nb.116
25.	2	UNIVERSITY QUESTIONS			
26.	1	ICT CLASS			
27.	1	TEST			
28.	UNIT-4				
29.	3	Participating in meeting	Prescribed Text	LECTURE	Pg. Nb.121
30.	3	Reading Visual Text – Advertisement.	Prescribed Text	VIDEO	Pg. Nb.125
31.	3	Preparing first draft of short assignments.	Prescribed Text	LECTURE	Pg. Nb.130
32.	2	Vocabulary: Denotation & Connotation	Prescribed Text	LECTURE/ PPT	Pg. Nb.132
33.	1	Grammar in Context: sentence type	Prescribed Text	LECTURE/ PPT	Pg. Nb.137
34.	1	UNIVERSITY QUESTIONS			
35.	2	ICT CLASS			
36.	1	TEST			
37.					



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38.	2	Informal interview for feature writing	Prescribed Text	LECTURE/PP T	Pg. Nb.144
39.	3	Listening & responding to questions at a formal interview.	Prescribed Text	VIDEO /LECTURE	Pg. Nb.145
40.	3	Writing letters of application	Prescribed Text	LECTURE/PP T	Pg. Nb.147
41.	3	Reader`s theatre	Prescribed Text	LECTURE	Pg. Nb.150
42.	1	Writing scripts & Word Power Collocations	Prescribed Text	LECTURE/PP T	Pg. Nb.154 Pg. Nb.156
43.	1	Grammar in Context: Working with clauses	Prescribed Text	LECTURE/PP T	Pg. Nb.171
44.	2	UNIVERSITY QUESTIONS			
45.	1	ICT CLASS			
46.		TEST			

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LESSON PLAN

PROGRAMME: B.Sc physics	SEMESTER/ YEAR: II / 2021-22
COURSE: Environmental Studies	COURSE CODE:UESJD21
FACULTY 'S NAME: MRS.M.GOWRI	TOTAL HOURS: 30 hrs Credit: 2

SYLLABUS

Objectives:

1. create awareness on Environment, ecosystem, energy flow, food chain, food web and Biogeochemical cycles
2. To understand the sustainable agriculture and exploitative human activity in
3. To create awareness on village adoption towards clean, green infrastructure, education, health, drinking water supply, etc

COURSE OUTCOME:

CO1: Impart knowledge about the awareness on environment,ecosystem,energy flow

CO2: Get an idea on the agriculture, human activity in polluting environment

CO3: To provide awareness on dringing,driving,road safety rules, traffic signals

CO4: To create awareness on disaster through intensive public education.

CO5: Understand the basic concepts of green infrastructure, education, health..

Unit I.

Earth and its Environment a) Earth formation and Evolution of Earth over time – Structure of earth and its components : Atmosphere, Lithosphere, Hydrosphere and Biosphere b) Resources – Renewable and Non- renewable resources.



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Unit II.

Ecology and Ecosystem concepts a) Ecology definition – ecosystem – definition – structure and function –energy flow- food chain and food web – one example for an ecosystem b) Biogeochemical cycles – Nitrogen, Carbon, Phosphorous, Water

Unit III.

Biodiversity and India a) Introduction- definition- values of biodiversity- threats to biodiversity conservation of biodiversity b) Biodiversity of India – as a mega diversity nation-bio-geographical distribution – hot spots of biodiversity- national biodiversity conservation board and its function.

Unit IV.

Pollution and Global Issues a) Definition, causes, effects and control measures of air, water, soil, marine, noise, thermal and nuclear pollution.

b) Global issues : Global warming and Ozone layer depletion.

Unit V.

Development and disaster management

a) Sustainable Development - sustainable agriculture – organic farming, irrigation – water harvesting and waste recycling – cyber waste and management.

b) Disaster management – Flood and Drought – Earthquake and Tsunami – Landslides and Avalanches – Cyclones and Hurricanes – Precautions, Warnings rescue and Rehabilitation.

c) Road safety rules – Traffic signals – Conduct of road safety awareness programme.

d) Role of the Colleges, Teachers and Students in village adoption towards clean, green and make in villages in various aspects.

Text Books

1. ENVIRONMENTAL STUDIES,R.Murugeshan.

2. Arumugam, N, 2016, Concepts of Ecology. Saras publication, Nagercoil



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Reference Books

1. Odum E.P., 1971, Fundamentals of ecology, W.B. Saunders Company, London.
2. Ecology for Environmental science. Biosphere- Anderson J.M. 1981

COURSE PLAN- II SEMESTER 2021-22

S No	HOURS	TOPIC	BOOK WITH PAGE NO	TEACHING MODE
UNIT-1				
1	1	Earth and its Environment ,Earth formation and Evolution of Earth over time.	T1(177-178)	Black board teaching
2	1	Structure of earth and its components Atmosphere, Lithosphere, Hydrosphere and Biosphere	T1(178-187)	Black board teaching
3	1	b) Resources ,Renewable and Non-renewable resources	T1(33-38)	PPT
4	2	UNIVERSITY QUESTIONS		
		ICT CLASS		
		TEST		
UNIT-2				
5	1	Ecology and Ecosystem concepts ,Ecology definition ,ecosystem ,definition , structure and function	T1(188,47-52)	Black board teaching
6	1	Energy flow,food chain and food web , one example for an ecosystem	T1(52-58)	VIDEOS
7	1	Biogeochemical cycles ,Nitrogen, Carbon, Phosphorous, Water	T1(59-62)	Black board teaching



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8	3	UNIVERSITY QUESTIONS		
		ICT CLASS		
		TEST		
UNIT-3				
9	1	Biodiversity and India , Introduction- definition- values of biodiversity- threats to biodiversity	T1(74-84)	Black board teaching
10	1	conservation of biodiversity,Biodiversity of India – as a mega diversity nation-bio- geographical distribution	T1(86-89)	Black board teaching
11	1	– hot spots of biodiversity- national biodiversity conservation board and its function.	T1(191-193)	PPT
12	3	UNIVERSITY QUESTIONS		
		ICT CLASS		
		TEST		
UNIT-4				
13	1	Pollution and Global Issues , Definition, causes, effects and control measures of air,	T1(90-97)	Black board teaching
14	1	water, soil, marine, noise, thermal and nuclear pollution.	T1(97-117)	Black board teaching
15	1	Global issues : Global warming and Ozone layer depletion	T1(139-142)	PPT
16	3	UNIVERSITY QUESTIONS		
		ICT CLASS		
		TEST		
UNIT-5				
17	1	Sustainable Development - sustainable agriculture – organic farming, irrigation – water harvesting	T1(130- 131,194- 196,117-	Black board teaching



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		and waste recycling – cyber waste and management.	119,196-204)	
18	1	Disaster management ,Flood and Drought , Earthquake and Tsunami ,Landslides and Avalanches ,Cyclones and Hurricanes .	T1(123-128,40,41,126-128)	Black board teaching
19	1	Precautions, Warnings rescue and Rehabilitation Relationship between Emf and current	T1(204-206,135-136)	Black board teaching
20	1	c) Road safety rules – Traffic signals – Conduct of road safety awareness programme.	R1	PEER TEACHING
21	1	Role of the Colleges, Teachers and Students in village adoption towards clean, green and make in villages in various aspects.	R1	GROUP DISCUSSION
22	2	UNIVERSITY QUESTIONS		
		ICT CLASS		
		TEST		

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LESSON PLAN

PROGRAMME: I BA TAMIL	SEMESTER/ YEAR: 2021-22
COURSE: PART 1 FIRST SEMESTER	COURSE CODE: UTMJL21
FACULTY 'S NAME: DR.S. SILVIA JULIET	TOTAL HOURS : 60

SYLLABUS

Objectives:

தமிழ்மொழி ஒவ்வொரு காலக்கட்டத்திலும் அந்தந்தச் சூழலுக்கு ஏற்ப இலக்கியங்களைப் பெற்றுள்ளது. தமிழால் சமயங்களும் சமயங்களால் தமிழும் வளர்ந்து உள்ளதை மாணவர்களுக்குக் கற்பிப்பதே இதன் நோக்கமாகும்.

COURSE OUTCOME:

CO1: காப்பிய இலக்கியங்கள்

ஒருவருக்கொருவர் கருத்தைப் பரிமாற்றிக் கொள்வதற்கு ஏற்ற ஊடகமாக விளங்குவது மொழி. அம்மொழியில் தோன்றிய இலக்கிய வகைகளுள் காப்பியங்களும் ஒன்று. அவைகளில் காணப்படும் உருவம், உள்ளடக்கம், உத்திமுறைகள் போன்றவை, காலந்தோறும் சமுதாய மாற்றங்களுக்கு ஏற்ப எவ்வாறு மாறுபடுகின்றன என்பதை இவ்வியல் நிரூபிக்க முற்படுகிறது.

CO2: சமய காப்பியங்கள்

சிறப்புமிக்க மனிதப் பாத்திரங்களின் வழி நல்வினை தீவினைகள் பற்றியும், இறுதியில் இறைநிலை எய்துதல் பற்றியும், இன்றைய சூழலில் முக்தி நிலைகளின் தேவைகள் பற்றியும் கூறும் சமய இலக்கியம், உலக வாழ்விற்கு தேவையான நன்நெறிகளைக் கூற முற்படுகிறது. அவற்றை இவ்வியல் எடுத்தியம்புகிறது.

CO3: நாடகம்

தத்துவார்த்த தர்க்கவாதங்களும், கருத்துச் செறிவும், நயமான மொழிநடைகளும் காணப்படும் நாடகங்களில், தனிமனித இயல்பும் அணுகுமுறையும், மற்ற மனிதர்களின் இயல்புகளோடு எவ்வாறு முரண்படுகிறது என்பதை இவ்வியல் எடுத்துக்காட்டுகிறது.

CO4: இலக்கணம்

பாடல் இயற்றுவதற்குப் பயன்படக்கூடிய பா, பல வகைகளைக் கொண்டுள்ளது. வெவ்வேறு விதமான ஓசைகளை உடையனவாக இருக்கும் பா வகைகளைக் குறித்து நான்காம் இயல் விவரிக்கிறது.

CO5: இலக்கிய வரலாறு மற்றும் படைப்பாற்றல்

பொருண்மையில் உயர்ந்ததாகவும், பொது நலப் பண்பில் சிறந்ததாகவும், புதுமையில் புகழுடையதாகவும் விளங்கும் இலக்கியங்கள், மனித உணர்ச்சிகளையும், சிந்தனைகளையும் எவ்வாறு வெளிப்படுத்துகின்றன என்பதை இவ்வியல் எடுத்துரைக்கிறது.



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அலகு 1 - காப்பிய இலக்கியங்கள்

சிலப்பதிகாரம் - கடலாடு காதை - மணிமேகலை - பாத்திரமரபு கூறிய காதை - சீவக சிந்தாமணி - கோவிந்தையார் இலம்பகம்.

அலகு 2 - காப்பிய இலக்கியங்கள்

இயேசு காவியம் - இரசம் தீர்ந்து விட்டது - சீராப்புராணம் - பாத்திமா திருமணப் படலம் - கம்ப இராமாயணம் - அயோத்தியா காண்டம் திருவடிகூட்டி படலம்.

அலகு 3 நாடகம்

அழுக்குப்படாத அழகு - நடைபாதை நம்பிக்கை நட்சத்திரங்கள் - உறவுப் பின்னல்கள்
சௌந்தரவல்லி.

அலகு 4 இலக்கணம்

பா வகைகள் - வெண்பா - ஆசிரியப்பா - கலிப்பா - வஞ்சிப்பா - அணியிலக்கணம் - உவமை - உருவகம் - வேற்றுமை - சிலேடை

அலகு 5 இலக்கிய வரலாறு

ஐம்பெருங்காப்பியங்கள் - ஐஞ்சிறுங்காப்பியங்கள் - நாடகத்தின் தோற்றமும் வளர்ச்சியும் - படைப்பாற்றல் - விளம்பரம் எழுதுதல் - திரைப்பட விமர்சனம் எழுதுதல்.

நூல்கள்

- Booklet

COURSE PLAN- 2nd SEMESTER 2021-22

S No	HOURS	TOPIC	BOOK	TEACHING MODE	PAGE NO
UNIT-1					
1	1	அலகு 1 - காப்பிய இலக்கியங்கள் சிலப்பதிகாரம் - கடலாடு காதை - வித்தியாதரன் காதலிக்கு விழாக்கோலம்	T1	LECTURE METHOD BLACK BOARD	1-2
2	1	மாதவி ஆடிய ஆடல் வகைகள்	T1	LECTURE METHOD BLACK BOARD	3-4



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3	2	கோவலன் மாதவியின் ஊடலும் கூடலும்	T1	LECTURE METHOD BLACK BOARD	4-5
4	1	அலகு 1 - காப்பிய இலக்கியங்கள் மணிமேகலை - பாத்திரமரபு கூறிய காதை	T1	LECTURE METHOD BLACK BOARD	5
5	1	பாத்திர மரபு கூறிய காதை	T1	LECTURE METHOD BLACK BOARD	6
6	1	பாத்திர மரபு கூறிய காதை	T1	LECTURE METHOD BLACK BOARD	6-7
7	2	அலகு 1 - காப்பிய இலக்கியங்கள் சீவக சிந்தாமணி - கோவிந்தையார் இலம்பகம்	T1	LECTURE METHOD BLACK BOARD	7-8
8	1	ஆநிரை கவர அனைவரும் கூடினர்	T1	LECTURE METHOD BLACK BOARD	9
9	1	ஆநிரை மீட்கக் கிளம்பின படைகள்.	T1	LECTURE METHOD BLACK BOARD	10
10	1	UNIVERSITY QUESTIONS			
11	1	ICT CLASS			
12	1	TEST			
UNIT-2					
13	2	அலகு 2 - காப்பிய இலக்கியங்கள் இயேசு காவியம் - இரசம்	T1	LECTURE METHOD BLACK BOARD	16-18



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		தீர்ந்து விட்டது			
14	1	சீறாப்புராணம் - பாத்திமா திருமணப் படலம்	T1	LECTURE METHOD BLACK BOARD	18
15	2	பாத்திமா திருமணப் படலம்	T1	LECTURE METHOD BLACK BOARD	18-19
16	1	பாத்திமா திருமணப் படலம்	T1	LECTURE METHOD BLACK BOARD	18-19
17	1	கம்ப இராமாயணம் அயோத்தியா காண்டம் திருவடிகூட்டி படலம்	T1	LECTURE METHOD BLACK BOARD	11-12
18	1	பரதனுக்குப் பரத்துவாசன் ஆசி கூறுதல்	T1	LECTURE METHOD BLACK BOARD	13-14
19	1	பரத்துவாசன் விருந்தளித்தல்	T1	LECTURE METHOD BLACK BOARD	15
20	1	ராமன் பரதனுடைய இயல்பை விளக்குதல் திருவடி சூட்டுப் படலம்	T1	LECTURE METHOD BLACK BOARD	16
21	1	UNIVERSITY QUESTIONS			
22	1	ICT CLASS			
23	1	TEST			
UNIT-3					
24	2	1. அழுக்குப்படாத அழகு	T1	DRAMATIZATION	20-36



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25	2	2. நடைபாதை நம்பிக்கை நட்சத்திரங்கள்	T1	LECTURE METHOD BLACK BOARD	37-42
26	2	2. நடைபாதை நம்பிக்கை நட்சத்திரங்கள்	T1	DRAMATIZATION	43-51
27	3	3 .உறவுப் பின்னல்கள்	T1	STUDENTS PRESENTATION BLACK BOARD	52-66
28	3	4. சௌந்தரவல்லி	T1	STUDENTS PRESENTATION BLACK BOARD	67-81
29	2	UNIVERSITY QUESTIONS			
30	1	ICT CLASS			
31	1	TEST			
UNIT-4					
32	1	அலகு 4 இலக்கணம் பா வகைகள் 1. வெண்பா 2. ஆசிரியப்பா	T1	LECTURE METHOD BLACK BOARD PPT	82-88
33	1	3. கலிப்பா 4. வஞ்சிப்பா	T1	LECTURE METHOD BLACK BOARD PPT	88-91
34	1	அணியிலக்கணம் 1. உ வமை 2. உருவகம்	T1	GROUP DISCUSSION PPT	92-93



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35	1	3. வேற்றுமை 4. சிலைடை	T1	LECTURE METHOD PPT	93-96
36	1	UNIVERSITY QUESTIONS			
37	1	ICT CLASS			
38	1	TEST			
UNIT-5					
39	2	அலகு 5 இலக்கிய வரலாறு ஐம்பெருங்காப்பியங்கள்	T1	GROUP DISCUSSION PROJECT METHOD	97-100
40	1	ஐஞ்சிறுங்காப்பியங்கள்	T1	BLACK BOARD GROUP DISCUSSION	100-101
41	2	நாடகத்தின் தோற்றமும் வளர்ச்சியும்	T1	LECTURE METHOD PPT DRAMATIZATION	102-104
42	2	விளம்பரம் எழுதுதல்	T1	VIDEOS, DEBATES STUDENT CENTERED LEARNING	105
43	1	திரைப்பட விமர்சனம் எழுதுதல்	T1	DEBATES VIDEOS	106-110
44	2	UNIVERSITY QUESTIONS			
45	1	ICT CLASS			



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46	1	TEST			
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LESSON PLAN

PROGRAMME: II B.SC., CHEMISTRY	SEMESTER/ YEAR: EVEN/ 2021-22
COURSE: MATHEMATICS II	COURSE CODE: SMTJA21
FACULTY 'S NAME: P.S.BOOMIKA	TOTAL HOURS: 90 HRS

SYLLABUS

Objectives:

1. To explore trigonometry as a tool in solving problems.
2. To learn vector differentiation and vector integration.

COURSE OUTCOME:

CO1: Distinguish between roots and coefficients and Compute Eigen values & Eigen Vectors.

CO2: Derive Hyperbolic functions and Inverse Hyperbolic functions.

CO3: Classify Tangent plane and Tangent Line in the section of Sphere.

CO4: Derive Vector Differentiation & Calculate and finding the solution using Gradient & Divergence.

CO5: Derive Vector Integration and Line & Surface Integrals.

UNIT I

Relation between roots and coefficients - Matrices: Characteristic Equation of a Matrix – Eigen Values and Eigen Vectors.

UNIT II

Trigonometry: Hyperbolic functions – Inverse hyperbolic Functions – Logarithm of Complex numbers.

UNIT III

Sphere – Standard equation – Tangent Line and Tangent Plane – Section of a Sphere.



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UNIT IV

Vector Differentiation – Gradient – Divergence - Curl and their Properties
– Solenoidal – Irrotational Vectors - Directional Derivative.

UNIT V

Vector Integration – Line Integrals – Surface Integrals.

Text Books:

1. **Modern Algebra-** Dr.Arumugam and Prof. A. Thangapandi Iassc, SciTech Publication, India Private Ltd., January 2018
2. **Trigonometry** S. Arumugam & Issac, , New Gamma Publishing House, November 2017.
3. **Analytical Geometry 3D and Vector Calculus--** Arumugam & Issac, New Gamma Publishing House, January 2017.

Reference Books:

1. **Theory of Equations & Trigonometry** – Dr. S. Arumugam and Prof. A.Thangapandi Iassc
2. **Analytical Geometry--**T. K. M. Pillai and S. Narayanan, S. Viswanathan Publishing Company, 2012.
3. **Analytical Geometry 3-Dimension-** P. Durai pandian and others, , Emerald Publishers, 1998.



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COURSE PLAN- 2nd SEMESTER 2021-22

S No	HOURS	TOPIC	BOOK	TEACHING MODE	PAGE NO
UNIT-1					
1	1 Hr	Relation between roots and coefficients - Introduction	R1	BLACKBOARD	Pg No: 5.13 , 5.14
2	3 Hrs	Relation between roots and coefficients – Problems: 1 - 14	R1	BLACKBOARD	Pg No: 5.14 – 5.28
3	3 Hrs	Matrices: Inverse of a Matrix – Rank of a Matrix – Definitions - Problems	T1	BLACKBOARD	Pg No: 7.11 – 7.14 , 7.19 – 7.22
4	3 Hrs	Characteristic Equation of a Matrix – Definitions – Problems: 1-7	T1	BLACKBOARD	Pg No: 7.25 – 7.7.30
5	2 Hrs	Eigen Values and Eigen Vectors – Definitions – Properties of Eigen values.	T1	BLACKBOARD	Pg No: 7.30 – 7.34
6	4 Hrs	Eigen Values and Eigen Vectors: Problems: 1 - 14	T1	BLACKBOARD	Pg No:7.34 – 7.39
7		UNIVERSITY QUESTIONS			
8	1 Hr	ICT CLASS		Applications of Matrix and Eigen values & Eigen vectors videos in YouTube	Matrix: https://youtu.be/Jh-IF59mk_k Eigen values & Eigen vectors: https://youtu.be/i8FukKfMKCI
9	1 Hr	TEST			
UNIT-2					
10	3 Hrs	Trigonometry: Hyperbolic functions – Definition – Result – Theorems and Examples	T2	BLACKBOARD	Pg No: 20-23
11	2 Hrs	Inverse Hyperbolic functions – Introduction – Theorems	T2	BLACKBOARD	Pg No: 23- 25
12	4 Hrs	Inverse Hyperbolic functions:	T2	BLACKBOARD	Pg No: 25 -



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		Problems: 1- 14			38
13	2 Hrs	Logarithm of a complex number: Definition and Theorems	T2	BLACKBOARD	Pg No: 39,40
14	3 Hrs	Logarithm of a complex number: Problems: 1-5	T2	BLACKBOARD	Pg No: 40-43
15		UNIVERSITY QUESTIONS			
16	1 Hr	ICT CLASS		Prepare the PPT	
17	2 Hrs	TEST			
UNIT-3					
18	3 Hrs	Sphere – Introduction – Equation of a Sphere – Definition and Problems.	T3	BLACKBOARD	Pg No: 4.1
19	2 Hrs	Standard form of a Sphere – Theorem – Diameter form – Theorem.	T3	BLACKBOARD	Pg No: 4.2, 4.3
20	3 Hrs	Tangent Line and Tangent Plane – Definition – Theorem and Problems	T3	BLACKBOARD	Pg No: 4.3 – 4.5
21	3 Hrs	Section of a Sphere – Definition – Theorem – Problems: 1- 12	T3	BLACKBOARD	Pg No: 4.5- 4.11
22	4 Hrs	Section of a Sphere- Problems: 12- 26	T3	BLACKBOARD	Pg No: 4.11- 4.21
23	1 Hr	UNIVERSITY QUESTIONS		Previous year Question Papers	Discussion
24		ICT CLASS			
25	2 Hrs	TEST			
UNIT-4					
26	2 Hrs	Vector Differentiation – Introduction – Vector Algebra - Definition	T3	BLACKBOARD	Pg No: 5.1 - 5.3
27	3 Hrs	Differentiation of Vectors – Definition – Theorems and Problems: 1,2	T3	BLACKBOARD	Pg No: 5.3 – 5.6
28	4 Hrs	Gradient – Definition – Theorem and Problems: 1 -13	T3	BLACKBOARD	Pg No: 5.6- 5.16
29	4 Hrs	Divergence – curl and their Properties – Definition – Theorem: 5.9 – 5.19	T3	BLACKBOARD	Pg No: 5.18 - 5.23
30	4 Hrs	Solenoidal – Irrotational Vectors – Directional Derivative – Problems:	T3	BLACKBOARD	Pg No: 5.23 – 5.28



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		1- 17			
31	1 Hr	UNIVERSITY QUESTIONS		Important University Questions given	
32	1 Hr	ICT CLASS		Vector Differentiation Important formulae and Results videos in YouTube	https://youtu.be/2_e_HolhoXk
33	1 Hr	TEST			
UNIT-5					
34	2 Hrs	Vector Integration: Double Integrals- Introduction and Example	T3	BLACKBOARD	Pg No:6.1-6.3
35	3 Hrs	Double Integrals: Problems: 1 - 19	T3	BLACKBOARD	Pg No: 6.3 – 6.19
36	2 Hrs	Triple Integrals: Problems: 1 - 6	T3	BLACKBOARD	Pg No: 6.23 – 6.30
37	2 Hrs	Jacobians – Definition – Examples and Problems: 1- 3	T3	BLACKBOARD	Pg No: 6.31 – 6.38
38	2 Hrs	Change of Variables in Double and Triple integrals: Problems: 1 - 8	T3	BLACKBOARD	Pg No: 6.38 - 6.47
39	2 Hrs	Line Integrals – Definition – Problems: 1 - 5	T3	BLACKBOARD	Pg No: 7.1 – 7.5
40	1 Hr	Surface Integrals – Definition – Problems: 1- 3	T3	BLACKBOARD	Pg No: 7.7 – 7.10
41	1 Hr	UNIVERSITY QUESTIONS		Previous year Question Papers	Discussion
42		ICT CLASS			
43	2 Hr	TEST			

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LESSON PLAN

PROGRAMME: B.Sc., Physics	SEMESTER/YEAR: II /2021-2022
COURSE: MEDICAL PHYSICS	COURSE CODE: SPHJS22
FACULTY 'S NAME : B.SIVARANJANI	TOTAL HOURS : 30 Hours

SYLLABUS

Objectives:

This course is designed to,

- Acquire basic knowledge of medical physics related to the diagnosis, treatment human diseases ,planning and development of treatment equipment .
- Provide the concepts, theories, methods to medicine or healthcare.

COURSE OUTCOME:

At the end of the course, the students will be capable of

CO1:Deals with the basis of human anatomy, anatomical terminology ,forces in our body physics of skeleton and its application.

CO2:Recognize the work of heart, physics of the cardiovascular system and pressure system.

CO3:Explaining the parts of human ear, eye.

CO4:Expounds the concepts of X-rays, ECG and its recording setup.

CO5: Deals with the concepts of EEG,EMG,CT scan and its recording setup.

Unit I

Basic Anatomical Terminology- Modeling and Measurement – Forces on and in the Body – Physics of the Skeleton – Heat and Cold in Medicine- Energy work and Power of the Body.

Unit II

Pressure system of the body- Physics of Cardiovascular system- Electricity within the Body – Applications of Electricity and Magnetism in Medicine.

Unit III

Sound in medicine- Physics of the Ear and Hearing- Light in medicine- Physics of eyes and vision.

Unit IV

X-rays- Production of X-rays- X-ray spectra- continues spectra and characteristic spectra- Coolidge tube- Electro Cardio Graph (ECG) - Block diagram- ECG Leads- Unipolar and bipolar-ECG recording set up.

Unit V

Electro Encephalo Graph (EEG) - origin- Block diagram- Electro Myograph (EMG) – Block diagram- EMG recorder- Computer Tomography (CT) principle- Block diagram of CT scanner.



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Text Book:

1. Medical Physics – Dr.A.Mujiber Rahman

COURSE PLAN-II SEMESTER 2021-22

S No	HOURS	TOPIC	BOOK	TEACHING MODE
UNIT-1				
1	1	Basic Anatomical Terminology, Modeling and measurement	T1-1.2,1.3,1.4,1.5,1.6,1.7,1.8 & 1.9	Lecture
2	1	Forces on and in the body , Physics of skeleton	T1 1.9,1.10,1.11,1.12,1.13	Lecture
3	1	Heat and Cold in medicine,Energy work and Power of the Body.	T1-1.13,1.14,1.15 & 1.16	Lecture and BB(Black Board)
4	1	UNIVERSITY QUESTIONS		
5	1	ICT CLASS		
6	1	TEST		
UNIT-2				
7	1	Pressure system of the body	T1-2.1,2.2 & 2.3	BB(Black Board) Lecture
8	1	Physics of Cardiovascular system	T1 – 2.4,2.5 & 2.6	Lecture
9	1	Electricity within the Body – Applications of	T1- 2.20,2.21,2.22,2.23 & 2.24	BB(Black Board) Lecture



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		Electricity and Magnetism in Medicine.		
10	1	UNIVERSITY QUESTIONS		
11	1	ICT CLASS		
12	1	TEST		
UNIT-3				
13	1	Sound in medicine- -	T1- 3.1,3.2 & 3.3	Lecture
14	1	Physics of the Ear and Hearing	T1- 3.3,3.4,3.5,3.6,3.7,3.8,3.9,3.10,3.11,3.12, 3.13 & 3.14	BB(Black Board) Lecture
15	2	Light in medicine, Physics of eyes and vision.	T1- 3.14,3.15,3.16,3.17,3.18,3.19,3.20,3.21, 3.22	BB(Black Board) Lecture
16	1	UNIVERSITY QUESTIONS		
17	1	TEST		
UNIT-4				
18	1	X-rays- Production of X-rays- X-ray spectra- continues spectra and characteristic spectra- Coolidge tube	T1-4.1,4.2,4.3,4.4,4.5 & 4.6	PPT and Video
19	2	Electro Cardio Graph (ECG) - Block diagram- ECG Leads-	T1-4.7,4.8,4.9,4.10,4.11,4.12,4.13 & 4.14	PPT and Video
20	1	Unipolar and bipolar-ECG recording set up.	T1- 4.14,4.15,4.16,4.17,4.18 & 4.19	PPT and Video
21	1	UNIVERSITY QUESTIONS		
22	1	TEST		



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UNIT-5				
23	1	Electro Encephalo Graph (EEG) - origin- Block diagram	T1- 5.1,5.2,5.3,5.4 & 5.5	Lecture
24	1	Electro Myograph (EMG) –Block diagram- EMG recorder	T1-5.5,5.6,5.7 & 5.8	Lecture
25	1	Computer Tomography (CT) principle- Block diagram of CT scanner.	T1- 5.8,5.9,5.10,5.11,5.12 & 5.13	BB(Black Board) Lecture
26	1	UNIVERSITY QUESTIONS		
27	1	ICT CLASS		
28	1	TEST		

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LESSON PLAN

PROGRAMME: B.Sc CS, B.Sc. Physics, B.Sc Chemistry, B.Sc Maths	SEMESTER/ YEAR: 2022-23
COURSE: PROFESSIONAL ENGLISH FOR PHYSICAL SCIENCES	COURSE CODE: UPCLP21
FACULTY 'S NAME: S.Aishwarya	TOTAL HOURS: 60HRS

Objectives:

- To develop the language skills of students by offering adequate practice in professional contexts.
- To enhance the lexical, grammatical and socio-linguistic and communicative competence of first year physical sciences students
- To focus on developing students' knowledge of domain specific registers and the required language skills.
- To develop strategic competence that will help in efficient communication
- To sharpen students' critical thinking skills and make students culturally aware of the target situation.

Course outcome:

CO1: Develop vocabulary and improve the accuracy in grammar.

CO2: Produce words with right pronunciation.

CO3: students will develop knowledge, skills and judgement around human communication that improve their ability to collaboratively work with others.

CO4: demonstrate positive group communication exchanges.

CO5: Create written text in a variety of literary genres.

Unit 1 – COMMUNICATIVE COMPETENCE

1. Calculus can save life
2. Coding as a creative art
3. Relativity of time and space
4. The spirit of Chemical Science



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Unit 2 - Persuasive Communication

1. Counting the sequence
2. Robots come in peace
3. Electronic Fitness Trackers
4. Lavoisier-The Father of modern chemistry

Unit 3- Digital Competence

1. The Fibonacci around us
2. Software Localization and social justice
3. Electronic warfare and defence
4. Phosgene-The Deadly villain of the Bhopal gas tragedy

UNIT -4 CREATIVE AND IMAGINATION

1. Walking on water like a water strider: A Glimpse on surface tension
2. The Invention story of Barcodes
3. Acid-Base chemistry with at-home volcanoes
4. Ada and Her Breakthrough in Analytical Engine
5. Creating web pages, Blogs, Flyers, and Brochures

UNIT 5 WORKPLACE COMMUNICATION & BASICS OF ACADEMIC WRITING

1. Workplace communication, Academic power point presentation
2. I) Artificial intelligence-Siri Cortana, and Alexa carry
The marks of their Human Maker
II) Product Description
III) Drafting a circular
3. Writing minutes of a meeting
4. 1. How do Earphones Work? The physics of sound
2 Writing Introduction, paraphrase and summary



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5. Punctuation.

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COURSE PLAN-2nd SEMESTER 2021-22

S No	HOURS	TOPIC	BOOK	TEACHING MODE	PAGE NO
UNIT-I					
COMMUNICATIVE COMPETENCE					
1	2	Calculus can save life	T1	LECTURE AND AUDIO LISTENING	5
2	2	Coding as a creative art	T1	LECTURE WITH PPT	14
3	2	Relativity of time and space	T1	LECTURE WITH PPT	24
4	2	The spirit of chemical sciences	T1	LECTURE AND ACTIVITY	35
5	1	UNIVERSITY QUESTIONS			
6	2	ICT CLASS			
7	1	TEST			
UNIT-2					
PERSUAIVE COMMUNICATION					
8	3	Counting the sequence	T1	LECTURE	46
9	3	Robots come in peace	T1	LECTURE	59
10	2	Electronic fitness trackers	T1	LECTURE AND PPT	73



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11	2	Lavoisier- The Father of Modern Chemistry	T1	LECTURE AND ACTIVITY	84
12	1	UNIVERSITY QUESTIONS			
13	2	ICT CLASS			
14	1	TEST			
UNIT-3					
DIGITAL COMPETENCE					
15	2	The Fibonacci around us	T1	LECTURE WITH PPT	93
16	2	Software localization and social justice	T1	LECTURE WITH PPT	107
17	2	Electronic Warfare and Defence	T1	LECTURE WITH PPT	121
18	2	Phosgene-The Deadly Villain of the Bhopal Gas Tragedy	T1	BLACKBOARD	132
19	1	UNIVERSITY QUESTIONS			
20	1	ICT CLASS			
21	1	TEST			
UNIT-4					
CREATIVITY AND IMAGINATION					
22	2	Walking on water Like a water strider: A Glimpse on Surface Tension	T1	LECTURE WITH VIDEOS	143
23	2	The Invention Story of Barcodes	T1	PPT	156
24	2	Acid -Base Chemistry with At-Home Volcanoes	T1	LECTURE WITH PPT	167



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25	2	Ada and Her Breakthrough in Analytical Engine	T1	BLACKBOARD	177
26	2	Creating Web Pages, Blogs, Flyers and Brochures	T1	LECTURE	185
27	1	UNIVERSITY QUESTIONS			
28	1	ICT CLASS			
29	1	TEST			
UNIT-5					
WORLPLACE COMMUNICATION AND BASICS OF ACADEMIC WRITING					
30	2	Workplace communication, Academic power point presentation	T1	PPT	189
31	2	I)Artificial intelligence-Siri Cortana, and Alexa Carry The Marks of Their Human Makers II) Product Description III) Drafting a circular	T1	LECTURE WITH PPT	192
32	2	Writing Minutes of a Meeting	T1	BLACKBOARD	209
33	2	Writing Introduction, Paraphrase & summary How do Earphones Work? The Physics of sound	T1	LECTURE	213
34	2	Punctuation	T1	BLACKBOARD	225
35	1	UNIVERSITY QUESTIONS			
36	1	ICT CLASS			
37	1	TEST			

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LESSON PLAN

PROGRAMME: B.Sc., Physics	SEMESTER/ YEAR: II / 2021-22
COURSE:THERMAL PHYSICS & ACOUSTICS	COURSE CODE: SPHJC21
FACULTY 'S NAME: Mrs.N.SUBHASHREE	TOTAL HOURS : 60 Hours

Course Objective

This course is designed to

1. Identifies the phenomena connected with heat capacities, conduction, convection and radiation
2. Applies the process of making use of heat energy to do mechanical work.
3. Solve problems in thermal physics and statistical mechanics by selecting appropriate equations

Course Outcomes

At the end of the course, the students will be capable of

CO	Course Outcome
CO1	Acquainted with isothermal and adiabatic processes and workdone in each of these process
CO2	Develop skills in the problem solving using the concepts of heat and thermodynamics
CO3	Develop knowledge of the laws of thermal conductivity and thermodynamics



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CO4	Introduce applications of thermodynamics heat engines such as carnot engine, otto engine
CO5	Familiarize with general terms in acoustics like intensity, loudness, reverberation

THERMAL PHYSICS AND ACOUSTICS

CREDIT 4

Objective: To understand the phenomena connected with heat capacities, conduction, convection and radiation, the process of making use of heat energy to do mechanical work.

Unit I: Calorimetry

Isothermal and adiabatic change- derivation of equations for both- C_v and C_p of a gas- Relation between them- Experimental determination of C_v by Jolly's method- determination of C_p by Regnault's method- Specific heat of a gas by Calendar and Barnes method.

Unit II: Transmission of heat

Conduction- Coefficient of thermal conductivity- Lees disc method of determination of thermal conductivity of bad conductor- Convection current in atmosphere- lapse rate- stability of atmosphere- green house effect- atmospheric pollution- Radiation- Stefan's law of radiation- experimental determination of Stefan's constant- derivation of Newton's law from Stefan's law- solar constant- temperature of sun- Angstrom's Pyrheliometer.

Unit III: Kinetic theory of gases

Postulates of kinetic theory of gases- mean free path- Transport Phenomena- diffusion, viscosity and thermal conductivity of gases- derivation of ideal gas equation- degrees of freedom- Boltzmann's law of equipartition of energy- Maxwell's law of distribution of molecular speed- Atomicity of gases- ratio of specific heat capacity of gases- calculation for monoatomic and diatomic gases.

Unit IV: Thermodynamics

Zeroth law of Thermodynamics - First law of thermodynamics - Heat engines- Reversible and irreversible process- Carnot's Theorem- Second law of thermodynamics-

Entropy- change of entropy in reversible and irreversible process-change of



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entropy in converting ice to steam- Maxwell's thermodynamical relations- Clausius – Clapeyron latent heat equation.

Unit V: Acoustics

Expression for velocity of sound in fluid medium- Newton's formula- Laplace correction- effect of temperature, pressure, humidity, density of medium and wind- velocity of longitudinal wave in a rod- Kundt's tube experiment- Laws of transverse vibration in a string- sonometer- Melde's string.

Reverberation- Sabine's Reverberation formula (No derivation) - Acoustics of building- factors affecting acoustics of building- sound distribution in an auditorium- Requisites for good acoustics.

Text Book:

1. THERMAL PHYSICS by R. Murugesan , S.Chand &co
- 2.A Text book of Sound by N.Subrahmanyam & Brijlal

COURSE PLAN- II SEMESTER 2021-22

S No	HOURS	TOPIC	BOOK	TEACHING MODE
UNIT-1				
1	1	Introduction – Syllabus dictation	Syllabus	
2	2	Isothermal and adiabatic change- derivation of equations for both- C_v and C_p of a gas	T1-192,193	BB
3	1	Relation between - C_v and C_p	T1-194	BB
4	1	determination of C_p by Regnault's method	T1-15	BB
5	2	Specific heat of a gas by Calendar and Barnesmethod.	T1-16,17	BB
6	2	Experimental determination of C_v by Jolly's method	T1-14,15	VIDEOS
7	1	UNIVERSITY QUESTIONS		
8	22	TEST		



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UNIT-2				
9	2	Conduction- Coefficient of thermal conductivity	T1-74,75	BB
10	2	Lees disc method of determination of thermal conductivity of bad conductor	T1-78,79	VIDEOS
11	2	Convection in atmosphere- lapse rate	T1-185,186	VIDEOS
12	1	stability of atmosphere- green house effect	T1-187,188	PPT
13	2	atmospheric pollution- Radiation- Stefan's law of radiation	T1-93	BB
14	1	experimental determination of Stefan's constant- derivation of Newton's law from Stefan's law	T1-94	BB
15	1	temperature of sun- Angstrom's Pyrhelio meter	T1-107,109	VIDEOS
16	1	UNIVERSITY QUESTIONS		
17	1	TEST		
UNIT-3				
18	1	Postulates of kinetic theory of gases- mean free path	T1-149,150	BB(Black Board Teaching)
19	2	Transport Phenomena- diffusion	T1-155,156	BB(Black Board Teaching)
20	2	Transport Phenomena viscosity and thermal conductivity of gases	T1-151,152	BB(Black Board Teaching)
21	1	derivation of ideal gas equation- degrees of freedom	T1-141,142	BB(Black Board Teaching)
22	1	Boltzmann's law of equipartition of energy- Maxwell's law of distribution of molecular speed	T1-142,144	BB(Black Board Teaching)



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23	1	Atomicity of gases- ratio of specific heat capacity of gases	T1-143	BB(Black Board Teaching)
24	1	UNIVERSITY QUESTIONS		
25	1	TEST		
UNIT 4				
26	1	Zeroth law of Thermodynamics	T1-23	BB(Black Board Teaching)
27	2	First law of thermodynamics	T1-24,25	BB(Black Board Teaching)
28	1	Heat engines- Reversible and irreversible process	T1-25,37	BB(Black Board Teaching)
29	2	Carnot's Theorem- Second law of thermodynamics-	T138,39	Videos
30	1	Entropy- change of entropy in reversible and irreversible process	T1-40,41	BB(Black Board Teaching)
31	2	change of entropy in converting ice to steam- Maxwell's thermodynamical relations	T1-43,167	BB(Black Board Teaching)
32	2	Clausius – Clapeyron latent heat equation.	T1-170	BB(Black Board Teaching)
33	1	UNIVERSITY QUESTIONS		
34	2	TEST		
UNIT 5				
35	1	Expression for velocity of sound in fluid medium- Newton's formula	T2-91,94	BB(Black Board Teaching)
36	2	Laplace correction- effect of temperature, pressure, humidity, density of medium and wind	T2-95,96,97,99,100	PPT
37	1	velocity of longitudinal wave in a rod	T2-163	BB(Black Board Teaching)



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38	1	Kundt's tube experiment	T2-164,165	VIDEOS
39	2	Laws of transverse vibration in a string- sonometer- Melde's string.	T2-146,147,152	VIDEOS
40	1	Reverberation- Sabine's Reverberation formula (No derivation)	T2-237,238	BB(Black Board Teaching)
41	1	sound distribution in an auditorium- Requisites for good acoustics.	T2-258,259	videos
42	1	UNIVERSITY QUESTIONS		
43	1	TEST		

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LESSON PLAN

PROGRAMME: B.Sc.	SEMESTER/ YEAR: II / 2021-22
COURSE: Application of electronic devices and instrumentation	COURSE CODE: SELJA41
FACULTY 'S NAME: Ms.S.Lakshmi Bala	TOTAL HOURS: 60 hrs Credit: 4

SYLLABUS

Objectives:

This course is designed to impart knowledge in electrical measurements and study sum of the special measuring instruments, classification of different types of transducers and their uses in bio potential recording devices, acquire knowledge in electrical appliances

COURSE OUTCOME:

CO1: understand the electrical measurements with extension. Special type of measuring instruments

CO2: introduction to monitor, analyse and measure frequency and phase using CRO

CO3: Acquire the basic knowledge measurements and the associated errors

CO4: study the methods of various recording systems and their bio potentials

CO5: classify and compare different type of electrical machines

Unit I

DC indicating instruments- Galvanometer- Moving coil mechanism- Sensitivity and resolution – DC ammeter and voltmeter- Ohmmeter-Multimeters, DVM - AC indicating instruments- electro-dynamometer- Moving iron and rectifier types - electrostatic voltmeter- Watt-hour meter, Principles and applications.

Unit II

Oscilloscope – Basic operation – Detection and sensitivity - Principles of storage oscilloscope and sampling Oscilloscope. Use of oscilloscope in measurement of Waveform, frequency, phase difference - lock-in amplifier, frequency, response analyser.



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Unit III

Transducer and sensors: Classification of Transducers –Active, Passive transducers- Basic Requirements of Transducers- Strain gauge – Types of strain gauges-Operation of Strain gauge – Piezo electric pressure Transducers – thermistors- thermocouple- Resistive type thermometer- platinum resistance thermometer.

Unit IV

Bio-potential Recorder: Characteristic recording system-Electrocardiography(ECG) Electroencephalograph (EEG)- Electromyograph(EMG)-Electroretinograph(ERG) and Electroculograph(EOG) – Ultrasound scanner.

Unit V

Electrical Appliances: Refrigerator,air conditioner(both Window and Split), Home security System, CCTV, Vacuum Cleaner, Microwave Oven-Electric water heater - General principles and working.

Text Book:

1. M. Arumugam – Biomedical instrumentation
2. A.K Sawhney –course in electrical and electronic measurements and instruments
3. V.K Metha- Principles of Electronics
4. J.J Brophy – Basic electronics for Scientist
5. W.D. Cooper – Electronic instrumentation and measurements techniques.
6. C.S Rangan, V.S.T.V Mani and G.K Sharma – Instrumentation devices and system
7. S.Salivahanan. N.sureshkumar – Electronic devices and circuits
8. R.P Bali consumer Electronics Pearson Edition (2008)

COURSE PLAN- IV SEMESTER 2021-22

S No	HOURS	TOPIC	BOOK & PAGE NO.	TEACHING MODE
UNIT-1				
1	2	DC indicating instruments- Galvanometer- Moving coil mechanism- Sensitivity and resolution	T2	Black board teaching
2	2	DC ammeter and voltmeter- Ohmmeter-Multimeters, DVM	T2	Black board teaching
3	2	AC indicating instruments- electrodyamometer	T2	Black board teaching



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4	2	Moving iron and rectifier types	T2	Black board teaching
5	2	electrostatic voltmeter	T2	Black board teaching
6	2	Watt-hour meter, Principles and applications.	T2	Black board teaching
7	1	University Questions		
8	1	ICT class		
9	2	Test		
Unit 2				
10	2	Oscilloscope – Basic operation – Detection and sensitivity	T3	PPT
11	2	Principles of storage oscilloscope and sampling Oscilloscope.	T3	PPT
12	1	Use of oscilloscope in measurement of Waveform, frequency, phase difference	T3	Black board teaching
13	1	lock-in amplifier, frequency, response analyser.	T3	Black board teaching
14	1	University Questions		
15	1	ICT class		
16	2	Test		
Unit 3				
17	2	Transducer and sensors: Classification of Transducers – Active, Passive transducers	T1	PPT
18	1	Basic Requirements of Transducers- Strain gauge	T1	PPT
19	1	Types of strain gauges-Operation of Strain gauge – Piezo electric pressure Transducers – thermistors	T1	PPT
20	1	thermocouple- Resistive type thermometer	T1	PPT
21	1	platinum resistance thermometer	https://www.technology.mattthey.com/article/3/3/78-87/	Video
22	1	University questions		



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23	1	ICT class		
24	2	Test		
Unit 4				
25	1	Bio-potential Recorder: Characteristic recording system- Electrocardiography(ECG)	T1	Blackboard teaching
26	1	Electroencephalograph (EEG)	T1	PPT
27	1	Electromyograph(EMG)	T1	PPT
28	2	Electroretinograph(ERG)	T1	PPT
29	1	Electroculograph(EOG) – Ultrasound scanner.	T1	PPT
30	1	University questions		
31	1	ICT class		
32	2	Test		
Unit 5				
33	1	Electrical Appliances: Refrigerator	https://www.scienceabc.com/innovation/how-does-a-refrigerator-work-working-principle.html	PPT
34	2	Air conditioner(both Window and Split)	https://www.trane.com/residential/en/resources/hvac-basics/how-does-an-air-conditioner-work/	PPT
35	2	Home security System, CCTV, Vacuum Cleaner	https://www.businesswatchgroup.co.uk/what-is-cctv-and-how-does-it-work/ https://cosmosmagazine.com/science/engineering/how-do-vacuum-cleaners-work/	PPT
36	1	Microwave Oven	https://www.fda.gov/radiation-emitting-products/resources-you-radiation-emitting-products/microwave-oven-radiation	PPT
37	2	Electric water heater	https://www.landmarkhw.com/resources/plumbing/how-	PPT



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			a-water-heater-works/2/12#:~:text=An%20electric%20water%20heater%20works,-out%20pipe%20(3)	
38	1	University questions		
39	1	ICT class		
40	2	Test		

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LESSON PLAN

PROGRAMME : தமிழ்	SEMESTER/ YEAR: 2வது பருவம், 2021-22
COURSE : இக்காலக் கவிதையும் சிறுகதையும்	COURSE CODE: UTMJL41
FACULTY 'S NAME : திருமதி. இர.அருள்அரசி	TOTAL HOURS: 60

SYLLABUS

Objective (குறிக்கோள்):

தமிழ் இலக்கிய உலகில் கவிதை மரபு காலம் தோறும் வளர்ந்து வருகிறது. மரபு கவிதை தொடங்கி இன்றைய கவிதைகள் வரை வளர்ச்சி பெற்றுள்ள வரலாற்றையும் அதன் வழி அறியலாகும் சமுதாய வெளிப்பாடுகளையும் அறிதல். சமூகத்தின் நடைமுறைகளை கதையாக சித்திரிக்கும் விதத்தையும், சிறுகதைகள் வழி அறியலாகும் செய்திகளை ஆய்வுக்கு உட்படுத்தலும்.

Course outcome: (பாடத்திட்ட நோக்கம்)

கூறு: 1

தமிழ் இலக்கிய வடிவங்களில், நெடுங்கால வரலாற்றையும், நீண்டநெடிய பாரம்பரியத்தையும் பரந்து விரிந்த களங்களையும் அவற்றின் பெருமையையும் மரபுக்கவிதை வழி அறிதல்.

கூறு: 2

இலக்கண கட்டுப்பாடுகளுக்கு உட்பட்டதும் உட்படாததும், காட்சி அலங்கார வார்த்தையின்றியும் உள்ளதை உள்ளபடியே எளிய தமிழில் கருத்தெடுத்துரைக்கும் புதுக்கவிதை (மற்றும்) ஹைக்கூ கவிதைகளை இப்பகுதி எடுத்துரைக்கிறது.

கூறு: 3

வாழ்க்கையில் ஒரு சிறு காட்சியோ நிகழ்ச்சியோ சிறுகதையாக உருவெடுக்கிறது. அவ்வாறான சிறுகதைக்குப் பின்னே உள்ள படைப்பாளரின் கலைஆற்றல், கற்பனைத்திறன், சொல்லாட்சி அவர் மறைமுகமாகக் கூறவரும் செய்தி என அனைத்தையும் ஒருங்கே எடுத்துக்கூறுவதாக இப்பகுதி அமைகிறது.

கூறு: 4

மொழிக்கு முதலிலும் இறுதியிலும் தோன்றும் எழுத்துக்கள் அதை சார்ந்துவரும் சார்பெழுத்துக்கள், வல்லினம் மிகும், மிகா இடங்களைப் பற்றி எளிமையாக விளக்குகிறது. அதன் வழி மொழியில் ஏற்படும் பிறமொழி கலப்பு, ஒருமை – பன்மை வேறுபாடு, ஒலி வேறுபாடு பற்றி மாணவியர் அறிய எளிமையாகவும், தெளிவாகவும் எடுத்தியம்புகிறது.

கூறு: 5

மரபு, புது கவிதைகள் (மற்றும்) சிறுகதையின் தோற்றம் மற்றும் வளர்ச்சியை முழுமையாகவும் விரிவாகவும் எடுத்துரைக்கிறது. அதன் வழி மாணவியரின் கவிதை, கதை எழுதும் ஆற்றலை ஊக்குவித்தல்.

பாடத்திட்டம்

கூறு :1 (அ) மரபுக்கவிதை

1. முரசு - பாரதியார்
2. பாதயாத்திரை - பாரதிதாசன்
3. ஒற்றுமையே உயிர்நிலை - கவிமணி
4. தமிழ் வழி அரசு - நாமக்கல் கவிஞர்
5. பாரதப் பூச்செண்டு - கண்ணதாசன்
6. தமிழில் பெயரிடுங்கள் - கவிஞர் சுரதா

திரையிசைப் பாடல்கள்



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7. ஏட்டில் படித்ததோடு இருந்துவிடாதே - பட்டுக்கோட்டை கல்யாணசுந்தரம்
8. கூவுங்கள் சேவல்களே - வாலி

(ஆ) நாட்டுப்புறப் பாடல்கள்

9. காதல் பாடல்கள் - தூது
10. திருமணப் பாடல்கள் - 1. திருமணம், 2. பெண் அழைப்பு, 3. சீதனம் ,
4. மங்கள வாழ்த்து, 5. வாழ்த்து,

கூறு : 2 புதுக்கவிதைகள் மற்றும் ஐக்கூ கவிதைகள்

1. பொங்கல் - ந.பிச்சமுர்த்தி
2. வெற்றி முகம் - ஈரோடு தமிழன்பன்
3. பாரம் - அப்துல் ரகுமான்
4. தந்தைக்கு ஒரு தாலாட்டு - மு.மேத்தா
5. அப்துல் கலாமின் வீணை - சிற்பி
6. நான் மரணத்தைப் பற்றி சிந்திக்கிறேன் - நா.காமராசன்
7. புத்தகப் புராணம் - வைரமுத்து
8. சீற்றம் வராத சிறுத்தைகள் - கந்தர்வன்
9. இயல்பாய் நடந்தேறியது - சண்முகம் சரவணன்
10. நம்பிக்கை - பா.விஜய்
11. ஏனிந்த வித்தியாசங்கள் - மல்லிகை
12. தேவைக்குப் பயன்படுத்து - மருத்துவர் ச.பாஸ்கரன்
13. ஐக்கூ கவிதைகள் -11 கவிதைகள்

கூறு : 3 சிறுகதைகள்

1. ஆத்தங்கரை பிள்ளையார் - புதுமைப் பித்தன்
2. அன்பளிப்பு - கு.அழகிரி சாமி
3. தனிமை - இராஜம் கிருஷ்ணன்
4. வாகனம் - அம்பை
5. புது வாத்தியார் - தனுஷ் கோடி ராமசாமி
6. பூமனச்சுனை - மேலாண்மை பொன்னுசாமி
7. கல்லூரிக்கு காதல் - முனைவர் வெ.இரையன்பு
8. கிணறு - பாரதிகிருஷ்ணக்குமார்
9. அம்மாவின் டைரி - சேதுமணி
10. தேவை அன்பு மட்டும் - வைகைச் செல்வி

கூறு : 4 (அ) இலக்கணம்

முதல் எழுத்துக்கள் - சார்பெழுத்துக்கள் , வல்லெழுத்து மிகும் இடங்கள், வல்லெழுத்து மிகா இடங்கள்,மொழி முதல் எழுத்துக்கள்,மொழி இறுதி எழுத்துக்கள் புதுக்கவிதையில் படிமம் குறியீடு.
(ஆ) மரபுப் பிழை நீக்குதல்
பிறமொழிச் சொற்களை நீக்குதல், பிழையற்ற தொடரைத் தேர்ந்தெடுத்தால், ஒருமை - பன்மை, ஓரெழுத்து ஒரு மொழிக்குரிய பொருள், ஒலி வேறுபாடுகளும் பொருள் வேறுபாடுகளும் பொருத்தமான பொருள் - பொருத்தமான தொடர்.

கூறு : 5 (அ) இலக்கிய வரலாறு

1. இருபதாம் நூற்றாண்டின் மரபுக்கவிதை
2. புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும்
3. சிறுகதையின் தோற்றமும் வளர்ச்சியும்

(ஆ) படைப்பாற்றல்

1. கவிதை எழுதுதல்.

Text book:

1. இக்காலக் கவிதையும் சிறுகதையும்



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COURSE PLAN- 4th SEMESTER 2021-22

S No	HOURS	TOPIC	BOOK	TEACHING MODE	PAGE NO
கூறு: 1					
1	1	(அ) மரபுக்கவிதை 1. முரசு - பாரதியார்	T1	LECTURE METHOD	5
2	1	2. பாதயாத்திரை - பாரதிதாசன்	T1	LECTURE METHOD	7
3	1	3. ஒற்றுமையே உயிர் நிலை - கவிமணி	T1	LECTURE METHOD	9
4	1	4. தமிழ்வழி அரசு - நாமக்கல் கவிஞர்		LECTURE METHOD	11
5	1	5. பாரதப் பூச்செண்டு - கண்ணதாசன்	T1	LECTURE METHOD	13
6	2	6. தமிழில் பெயரிடுங்கள் - கவிஞர் சுரதா	T1	LECTURE METHOD	14
7	2	திரையிசைப் பாடல்கள் 7. ஏட்டில் படித்ததோடு இருந்துவிடாதே - பட்டுக்கோட்டை கல்யாணசுந்தரம் 8. கூவுங்கள் சேவல்களே - வாலி		LECTURE METHOD WT MOVIE SONG VIDEO	15 17
8	1	(ஆ) நாட்டுப்புறப் பாடல்கள் 9. காதல் பாடல்கள் - தூது		LECTURE METHOD	18
9	1	10. திருமணப் பாடல்கள் - திருமணம், பெண் அழைப்பு, சீதனம், மங்கள வாழ்த்து, வாழ்த்து.		LECTURE METHOD AND நாட்டுப்புறப் பாடல் VIDEO	19 20 21 22 23
10	1	UNIVERSITY QUESTIONS			
11	1	ICT CLASS			
12	1	TEST			
கூறு: 2					
13	2	புதுக்கவிதைகள் மற்றும் ஐக்கூ கவிதைகள் 11. பொங்கல் - ந.பிச்சமூர்த்தி 12. வெற்றி முகம் - ஈரோடு தமிழன்பன்	T1	LECTURE METHOD	25 27
14	1	13. பாரம் - அப்துல் ரகுமான்	T1	LECTURE METHOD	29



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15	1	14. தந்தைக்கு ஒரு தாலாட்டு - மு.மேத்தா	T1	LECTURE METHOD	34
16	2	15. அப்துல் கலாமின் வீணை - சிற்பி 16. நான் மரணத்தைப் பற்றி சிந்திக்கிறேன் - நா.காமராசன்	T1	LECTURE METHOD	42 45
17	2	17. புத்தகப் புராணம் - வைரமுத்து 18. சீற்றம் வராத சிறுத்தைகள் - கந்தர்வன்	T1	LECTURE METHOD	48 53
18	2	19. இயல்பாய் நடந்தேறியது - சண்முகம் சரவணன் 20. நம்பிக்கை - பா.விஜய்	T1	LECTURE METHOD	57 58
19	1	21. ஏனிந்த வித்தியாசங்கள் - மல்லிகை	T1	LECTURE METHOD	61
20	1	22. தேவைக்குப் பயன்படுத்து - மருத்துவர் ச.பாஸ்கரன்	T1	LECTURE METHOD	62
21	1	23. ஐக்கூ கவிதைகள் - 11 கவிதைகள்	T1	LECTURE METHOD WT GROUP DISCUSSION	64
22	1	UNIVERSITY QUESTIONS			
23	1	ICT CLASS			
24	1	TEST			
கூறு:3					
25	1	சிறுகதைகள் 1.ஆத்தங்கரை பிள்ளையார் - புதுமைப்பித்தன்	T1	LECTURE METHOD	66
26	1	2. அன்பளிப்பு - கு.அழகிரிசாமி	T1	LECTURE METHOD	73
27	1	3. தனிமை - இராஜம் கிருஷ்ணன்	T1	LECTURE METHOD	93
28	1	4. வாகனம் - அம்பை	T1	LECTURE METHOD	102
29	1	5. புது வாத்தியார் - தனுஷ்கோடி ராமசாமி	T1	LECTURE METHOD	111
30	1	6. பூமனச்சுனை - மேலாண்மை பொன்னுசாமி	T1	LECTURE METHOD	118
31	1	7. கல்லூரிக் காதல் - முனைவர் வெ.இறையன்பு	T1	LECTURE METHOD	128
32	1	8. கிணறு - பாரதி கிருஷ்ணக்குமார்	T1	LECTURE METHOD	137
33	1	9. அம்மாவின் டைரி - சேதுமணி	T1	LECTURE METHOD	143
34	1	10.தேவை அன்பு மட்டும் - வைகைச் செல்வி	T1	LECTURE METHOD	151
35	1	UNIVERSITY QUESTIONS			
36	1	ICT CLASS			
37	1	TEST			
கூறு : 4					
35	1	(அ) இலக்கணம் முதல் எழுத்துக்கள் - சார்பெழுத்துக்கள்	T1	LECTURE METHOD WT VIDEO	178+163
36	1	வல்லெழுத்து மிகும் இடங்கள்	T1	LECTURE METHOD	170



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		வல்லெழுத்து மிகா இடங்கள்		WT VIDEO	174
37	1	மொழி முதல் எழுத்துக்கள் , மொழி இறுதி எழுத்துக்கள்	T1	LECTURE METHOD WT VIDEO	182 184
38	1	புதுக்கவிதையில் படிமம் புதுக்கவிதையில் குறியீடு.	T1	LECTURE METHOD WT VIDEO	186 190

39	1	(ஆ) மரபுப் பிழை நீக்குதல் பிறமொழிச் சொற்களை நீக்குதல்	T1	LECTURE METHOD WT VIDEO	194 201
40	1	பிழையற்ற தொடரைத் தேர்ந்தெடுத்தால் ஒருமை - பன்மை	T1	LECTURE METHOD WT VIDEO	210 216
41	1	ஒரெழுத்து ஒரு மொழிக்கூரிய பொருள்	T1	LECTURE METHOD WT VIDEO	219
42	1	ஒலி வேறுபாடுகளும் பொருள் வேறுபாடுகளும் பொருத்தமான பொருள் - பொருத்தமான தொடர்.		LECTURE METHOD WT VIDEO	222 227
43	2	UNIVERSITY QUESTIONS			
44	1	ICT CLASS			
45	1	TEST			

கூறு : 5

46	2	(அ) இலக்கிய வரலாறு 1. இருபதாம் நூற்றாண்டின் மரபுக்கவிதை	T1	LECTURE METHOD WT VIDEO	230
47	2	2. புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும்	T1	LECTURE METHOD WT VIDEO	235
48	2	3. சிறுகதையின் தோற்றமும் வளர்ச்சியும்	T1	LECTURE METHOD WT VIDEO	239
49	2	(ஆ) படைப்பாற்றல் 1. கவிதை எழுதுதல்.	T1	LECTURE METHOD AND GROUP DISCUSSION	
50	2	UNIVERSITY QUESTIONS			
51	1	ICT CLASS			
52	1	TEST			

Sign of HOD	Sign of Faculty
Sign of Dean Academics	



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MANGAYARKARASI



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LESSON PLAN

PROGRAMME: II B.Sc.,Physics	SEMESTER/ YEAR: IV /2021-2022
COURSE: Mathematics IV	COURSE CODE: SMTJA41
FACULTY'S NAME: PR. ILAKKIYA	TOTAL HOURS: 90 Hrs

Course Objective

This course is designed to

- To introduce the fundamental concepts of LPP.
- To develop the skills in decision making
- To equip the students in solving real time problems.

Course Outcomes

At the end of the course, the students will be capable of

CO1 – Linear Programming Problem and Graphical Method.

CO2 – Solution of linear Programming Problem by using Simplex & Big- M Method

CO3 – Solution of Linear Programming Problem by using Duality.

CO4 – Methods to find the feasible solution of Transportation Problem.

CO5 - Solution of Assignment Problem and Hungarian Algorithm.



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SYLLABUS

UNIT I

Linear Programming Problems: Formulation of LPP – Mathematical formulation of LPP – Solution of LPP – Graphical Method.

UNIT II

Simplex Method – Big-M method.

UNIT III

Duality in LPP.

UNIT IV

Transportation Problem: Mathematical formulation of TP – Degeneracy of TP

UNIT V

Assignment Problems: Mathematical formulation of AP – Solution to AP – Sequencing: Processing n jobs in two machines – Processing n jobs in m machines.

Recommended Reading

Text Book:

Linear Programming--Dr. S. Arumugam and Prof. Thangapandi Issac, New Gamma Publishing House, March 2015.

Unit I: Chapter 3 – Sections 1, 2, 3 and 4

Unit II: Chapter 3 - Sections 5 and 6

Unit III: Chapter 3 - Section 9

Unit IV: Chapter 4

Unit V: Chapter 5 and Chapter 6 - Sections 1 and 2.

Reference Books:

1. **Linear Programming**--Dr. S. Arumugam and Prof. Thangapandi Issac, New Gamma Publishing House, March 2015.
2. **Operations Research**-- Kanti Swarup, P. K. Gupta, Manmohan, Sultan Chand & Sons, New Delhi, 1978.



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COURSE PLAN- 4th SEMESTER 2021-2022

S No	HOURS	TOPIC	BOOK	TEACHING MODE	PAGE NO.
UNIT-1					
1	3hrs	Formulation of LPP	T1	BLACK BOARD	3-1 to 3-30
2	2 hrs	Mathematical formulation of LPP	T1	BLACK BOARD	3-31 to 3-41
3	4hrs	Solution of LPP	T1	BLACK BOARD	3-42 to 3-63
4	4 hrs	Graphical method	T1	BLACK BOARD	3-64 to 3-85
5	1 hr	UNIVERSITY QUESTIONS	Question bank	Discussion	
6	1 hr	ICT CLASS		PPT	
7	2 hr	TEST			
UNIT-2					
8	7 hrs	Simplex method	T1	BLACK BOARD	3-86 to 3-115
9	7 hrs	Big M method	T1	BLACK BOARD	3-116 to 3-148
10	1 hr	UNIVERSITY QUESTIONS	Question bank	Discussion	
11	1 hr	ICT CLASS		PPT	
12	2 hr	TEST			
UNIT-3					
13	2hrs	Duality in LPP -definitions and theorems and examples	T1	BLACK BOARD	3-181 to 3-198
14	4 hrs	Primal and dual (theorems and rules)	T1	BLACK BOARD	3-198 – 3-201
15	7	Solved problems and exercise			3-201 to 3-218
16	1 hr	UNIVERSITY QUESTIONS	Question bank	Discussion	
17	1 hr	ICT CLASS		PPT	
18	2 hrs	TEST			
UNIT-4					



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19	3 hr	Mathematical foundation of TP-Definitions and theorem	T1	BLACK BOARD	4-1 to ,4-6
20	2 hr	North West corner rule, row and column minima, vogels approximation methods algorithm	T1	BLACK BOARD	4-6 to 4-11
21	5 hrs	Example Problems	T1	BLACK BOARD	4-11 to 4-37
22	2 hrs	Determining the entering and leaving variables	T1	BLACK BOARD	4-38 to 4-4-69
23	5 hrs	Degeneracy in TP	T1	BLACK BOARD	4-69 to 4-76
24	1 hr	UNIVERSITY QUESTIONS	Question bank	Discussion	
25	1 hr	ICT CLASS		PPT	
26	2 hrs	TEST			
UNIT-5					
27	3 hrs	Mathematical formulation on assignment problem	T1	BLACK BOARD	5-1 to 5-43
28	5 hrs	Hungarian Method	T1	BLACK BOARD	6-1 to 6-12
29	5 hrs	Processing n jobs in m Machines	T1	BLACK BOARD	6-13 to 6-24
30	1hr	UNIVERSITY QUESTIONS	Question bank	Discussion	
31	1hr	ICT CLASS		PPT	
32	2hrs	TEST			

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LESSON PLAN

PROGRAMME: B.Sc., Physics	SEMESTER / YEAR: IV / 2021-22
COURSE: Optics and Spectroscopy	COURSE CODE: SPHJC41
FACULTY 'S NAME: Dr. M. Sinduja	TOTAL HOURS: 60 hrs Credit: 4

SYLLABUS

Objectives:

The aim of the paper is to highlight various optic Phenomena such as refraction, reflection, interference, diffraction, and polarization

COURSE OUTCOME:

CO1: Familiarize the fundamental law concerning reflection and refraction

CO2: Understand the interference phenomena and Holography

CO3: Know the diffraction phenomena and its derivations

CO4: Familiarize polarization phenomena and various explanations

CO5: understand the term 'spectroscopy' and Raman effect

Unit I

Snell's law of reflection and refraction- reflection and refraction at spherical surfaces- Derivation produced by thin lenses- focal length of two thin lenses in and out of contact- Cardinal points- Refraction through thin prism- Dispersion- derivation without dispersion. Dispersion without derivation- Aberration- Chromic aberration in lenses- Achromatic combination of two lenses- Spherical aberration and removal- Aplanatic lens- oil immersion objective

Unit II

Interference- Coherent sources- Interference in thin films- Air wedge- Newton's ring- Michelson interferometer and its applications- Fabroy Perot interferometer- sharpness of fringes- Resolution- Holography- construction and reconstruction of hologram.

Unit III

Diffraction- Theory of plane diffraction grating (normal incidence)- experiment to determine wavelength- zonal plate- theory- comparison with convex lenses- Fresnel's diffraction- diffraction at a



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straight edge- circular aperture- rectangular aperture- Fraunhofer diffraction at a single slit- double slit- Cornu spiral- Resolving power of optical instruments- telescope and grating

Unit IV

Polarization- Polaroid and its applications- double refraction- Nicol prism- Nicol prism as polarizer and analyser- Huygen explanation of double refraction- QWP and HWP- production and analysis of plane, circularly and elliptically polarized light- optical activity- Fresnel's explanation- specific rotation- Lorentz half shade polarimeter

Unit V

Spectroscopy- Introduction- electromagnetic spectrum- IR radiations- Properties, production, detection and its uses- UV radiations- properties, production, detection and its uses- Raman effect- Theory and experimental study- applications. Characteristics of Raman lines- Raman effects in optics and its applications

Reference book:

R1. Optics- Satyaprakash, A Pragati edition

R2. Optics and Spectroscopy, R. Murugesan and Kiruthiga sivaprasath, S. Chand and Co

Teaching mode:

BB (black board teaching), PPT (power point presentation)

COURSE PLAN- IV SEMESTER 2021-22

S No	HOURS	TOPIC	BOOK	Teaching mode
UNIT-1				
1	1	Snell's law of reflection and refraction- reflection and refraction at spherical surfaces	R1 (part-1: 1-19)	BB
2	2	Derivation produced by thin lenses- focal length of two thin lenses in and out of contact	R1 (part 1: 33-36)	BB
3	1	Cardinal points- Refraction through thin lens	R1 (part 1: 74, 77-83)	BB
4	1	Dispersion- derivation	R1 (part 1: 199-202)	BB
5	2	Aberration- Chromic aberration in lenses- Achromatic combination of two lenses	R1 (part 1: 173, 197,198,	PPT



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			208-212)	
6	1	Spherical aberration and removal-	R1 (part 1: 174,175,183- 185)	PPT
7	1	Aplantic lens- oil immersion objective	R1 (part 1: 190-192)	PPT
8	1	University Questions		
9	2	Test		
Unit 2				
10	2	Interference- Coherent sources- Interference in thin films	R1 (part 2: 24, 32, 33, 38,39, 92- 103)	BB
11	2	Air wedge	R1 (part 2: 104-108)	BB
12	1	Newton's ring	R1 (part 2: 109-114)	BB
13	1	Michelson interferometer and its applications	R1 (part 2: 124-131)	PPT
14	1	Fabroy Perot interferomenter- sharpness of fringes- Resolution	R1 (part 2: 133-140)	PPT
15	2	Holography- construction and reconstruction of hologram.	R1 (part 3: 106-111)	PPT
16	1	University Questions		
17	1	Test		
Unit 3				
18	2	Diffraction- Theory of plane diffraction grating (normal incidence)- experiment to determine wavelength	R1 (part 2: 186- 194	BB
19	2	zonal plate- theory- comparision with convex lenses	R1 (part 2: 195-200)	BB
20	1	Fresnel's diffraction- diffraction at a straight edge- circular aperture- rectangular aperture-	R1 (part 2: 217-221)	BB
21	2	Fraunhofer diffraction at a single slit- double slit	R1 (part 2: 246-252, 256-259)	BB
22	1	Cornu spiral- Resolving power of optical instruments- telescope and grating	R1 (part 2: 232-234,	BB



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			301-306. 313-318)	
23	1	University questions		
24	1	Test		
Unit 4				
25	2	Polarization- Polaroid and its applications	R1 (part 2: 339-341, 371, 372)	PPT
26	2	double refraction- Nicol prism-Nicol prism as polarizer and analyser	R1 (part 2: 355-358)	BB
27	2	Huygen explanation of double refraction- QWP and HWP- production and analysis of plane, circularly and elliptically polarized light-	R1 (part 2: 360, 361, 384-392)	BB
28	2	optical activity- Fresnal's explanation	R1 (part 2: 417-422)	BB
29	1	specific rotation- Lorentz half shade polarimeter	R1 (part 2: 433-427)	BB
30	1	University questions		
31	1	Test		
Unit 5				
32	2	Spectroscopy- Introduction- electromagnetic spectrum	R2 (127, 128)	PPT
33	2	IR radiations- Properties, production, detection and its uses	R2 (129)	PPT
34	2	UV radiations- properties, production, detection and its uses	R2 (130-131)	PPT
35	2	Raman effect- Theory and experimental study- applications. Characteristics of Raman lines	R2 (132-134)	PPT
36	2	Doppler effects in optics and its applications	R2 (162-163)	PPT
37	1	University questions		
38	1	Test		

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KoLESSON PLAN

PROGRAMME:ENGLISH	SEMESTER/ YEAR: IV/ 2021-22
COURSE: PART-II (COMMUNICATIVE ENGLISH)	COURSE CODE:UENJE41
FACULTY 'S NAME: M . Mano Ranjani Devi	TOTAL HOURS: 6/ WEEK

Objectives:

1. Help the students to understand the various aspects of literature.

COURSE OUTCOME:

CO1: To analyze and Learn moral values in drama

CO2: Enable the students to learn the basic skills of listening, speaking, reading, and writing the language proficiently.

CO3: analyse, understand and appreciate prose writings

CO4: make the students proficient communicators in English

CO5: Enable students to identify the prominent methods and modes of Communication.

ENGLISH FOR COMMUNICATION SKILLS(PART-II)

COURSE CODE: UENJE41

Unit I:Drama

Shakespeare: merchant of Venice

Unit II: Word Power

1. Vocabulary
2. Choice of words
3. Analogy questions

Unit III: Comprehension Skills

Comprehension Writing for Unknown Passage

1. Prose



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2. One word substitution
3. Homonyms

Unit-IV: Art of Public Speaking

Welcome Address, Presidential address, Key note or Chief Guest's address, Introducing a Speaker, Vote of thanks

Unit-V: Composition

1. Telephone Communication
2. E-mail Writing
3. Group Discussion

Books Recommended:

Merchant of Venice, Mahamm Publisher, Chennai-78

English for Success, G.RadhaKrishna Pillai, Emerald Publishers

COURSE PLAN- 4th SEMESTER 2021-22

S No	HOURS	TOPIC	BOOK	TEACHING MODE	PAGE NO
UNIT-1					
1	2	Shakespeare: merchant of Venice	T1	Story Telling/Critical Thinking	1- 26
2	1	UNIVERSITY QUESTIONS			
3	1	ICT CLASS			
4		TEST			
UNIT-2					
5	2	Vocabulary	T1	Activity Based	26- 30
6	2	Choice of words	T1	Interactive session	30 - 34
7	2	Analogy questions	T1	Innovative /Activity Based	34- 41
8	1	UNIVERSITY QUESTIONS			
9	1	ICT CLASS			
10	1	TEST			



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UNIT-3					
11	2	Prose	T1	Line by line explanations	41- 45
12	1	One word substitution		Chalk and Talk/peer teaching	45- 49
13	1	Homonyms		Chalk and Talk	49 - 53
14	1	UNIVERSITY QUESTIONS			
15	2	ICT CLASS			
16	1	TEST			
UNIT-4					
17	5	Welcome Address, Presidential address, Key note or Chief Guest's address, Introducing a Speaker, Vote of thanks	T1	Explaining Format/Innovative teaching method	53- 69
18	2	UNIVERSITY QUESTIONS			
19	1	ICT CLASS			
20	1	TEST			
UNIT-5					
21	2	Telephone Communication	T1	Peer teaching	70- 76
22	2	E-mail Writing	T1	Practising session	77- 80
23	2	Group Discussion	T1	Peer teaching	81- 87
24	2	UNIVERSITY QUESTIONS			
25	1	ICT CLASS			
26	2	TEST			

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LESSON PLAN

PROGRAMME: B.Sc., PHYSICS	SEMESTER / YEAR: VI / 2021-22
COURSE: Classical and Statistical Mechanics	COURSE CODE: SPHJC61
FACULTY 'S NAME: Mrs. G. Jenifer	TOTAL HOURS: 60 hrs Credit: 4

SYLLABUS

Objectives:

This course is designed to understand the mechanics of systems of particles and their equations of motion, study the concept of statistics of molecules, gain thorough knowledge on different classical and quantum mechanical distribution functions.

COURSE OUTCOME:

CO1: State the conservation principles involving momentum, angular momentum and energy, also understand the fundamental equations of motion.

CO2: Describe and understand the motion of a mechanical system using Lagrange-Hamiltonian formalism.

CO3: Identify differences between the classical and quantum models of the harmonic oscillator.

CO4: Apply the theory to understand gases and crystals and in addition be able to construct microscope models & from these derive thermodynamic observables.

CO5: Analyse important examples of ideal Bose systems and Fermi systems.

Unit I

External and Internal force, Centre of Mass – Conservation of Linear momentum- Conservation of Angular momentum –Conservation of Energy (K.E., P.E.) – Work-energy theorem- Conservative forces- examples- constrains- Types of Constraints- Examples- Degrees of freedom under constraints- Generalized Coordinates (Transformation Equations) – generalized velocities- generalized momentum.

Unit II

Principle of Virtual Work – D'Alembert's principle- Lagrangian Equations from D'Alembert's Principle (Derivation) – Simple applications- Newton's equation of motion, simple pendulum, Atwood's machine, compound pendulum- Hamilton's principle- deduction of Hamilton's principle from D'Alembert's principle- Lagrangian equation from Hamilton's principle- Deduction of Lagrangian



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equation of motion from variation principle- simple application- simple pendulum, Atwood's machine, compound pendulum.

Unit III

Hamiltonian Function H- conservation of energy(Jacobi's Integral) – Physical significance- Hamilton's Equations (Derivation) – variation principle- Hamilton's Equation of motion from variation principle- Applications- Harmonic oscillator, motion of a particle in central force field, Charged particle moving in an electromagnetic field, compound Pendulum, Two Dimensional Harmonic Oscillator

Unit IV

Classical statistics- microscopic and macroscopic systems- ensembles- Basic postulates of statistical mechanics- Probability- Thermodynamic probability- Boltzmann theorem on entropy and probability- Maxwell-Boltzmann statistics- Maxwell-Boltzmann energy distribution law- - Maxwell Boltzmann velocity distribution Law.

Unit V

Quantum statistics- introduction- phase space- Planck's law of black body radiation (derivation) - Deduction of Wien's and Rayleigh Jean's law- Bose-Einstein statistics- Bose- Einstein distribution law- Photon gas- Fermi-Dirac Distribution Law- Electron gas- Comparison of the three Statistics.

Text Book:

T1. J.C. Upadhyaya, July 2005, **Classical Mechanics**, Published by Himalya Publishing House, Mumbai

T2. Brijlal & Subramaniam, Reprint 1998, **Heat & Thermodynamics**, S. Chand & Company Ltd

T3. Agarwal, '**Statistical Physics**' S.Chand & co New Delhi 1996

References:

R1. Gupta, B.D., Satyaprakash, 1991, **Classical Mechanics**, 9th ed., Kadernath Ramnath Publ., Meerut

R2. Gupta, Kumar, Sharma, 2005, **Classical Mechanics**, Pragati Prakashan Publ., Meerut.

R3. Murray R. Spiegel, 1981, Theoretical Mechanics, Schaum's outline series, Mc Graw Hill Publ. Co., New Delhi.

COURSE PLAN- VI SEMESTER 2021-22

S No	HOURS	TOPIC	BOOK WITH PG.NO	TEACHING MODE
UNIT-1				
1	2	External and Internal force, Centre of Mass	T1 (9,10)	Black board teaching
2	2	Conservation of Linear momentum-	T1(10,11,13)	PPT



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		Conservation of Angular momentum – Conservation of Energy (K.E., P.E.)		
3	2	Work-energy theorem- Conservative forces- examples- constrains- Types of Constraints- Examples	T1(7,29)	Black board teaching
4	2	Degrees of freedom under constraints	T1(28)	Black board teaching
5	2	Generalized Coordinates (Transformation Equations)	T1(34)	Black board teaching
6	2	generalized velocities- generalized momentum.	T1(75)	PPT
7	1	University Questions		
8	1	ICT class		
9	1	Test		
Unit 2				
10	2	Principle of Virtual Work – D'Alembert's principle	T1(35,36)	Black board teaching
11	2	Lagrangian Equations from D'Alembert's Principle (Derivation) – Simple applications	T1(38)	Black board teaching
13	2	Hamilton's principle- deduction of Hamilton's principle from D'Alembert's principle	T1(51,146)	PPT
14	2	Lagrangian equation from Hamilton's principle- Deduction of Lagrangian equation of motion from variation principle	T1(51)	Black board teaching
15	2	simple application- simple pendulum, Atwood's machine, compound pendulum.	T1(41,43,44)	PPT
16	1	University Questions		
17	1	ICT class		
18	1	Test		
Unit 3				
19	2	Hamiltonian Function H- conservation of energy(Jacobi's Integral) – Physical significance	T1(197,201)	Black board teaching
20	1	Hamilton's Equations (Derivation) – variation principle- Hamilton's Equation of motion from variation principle	T1(91,147)	Black board teaching
21	1	Applications- Harmonic oscillator, motion of a particle in central force field	T1(86,87)	PPT



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22	1	Charged particle moving in an electromagnetic field	T1(88)	Black board teaching
23	2	compound Pendulum, Two Dimensional Harmonic Oscillator	T1(89)	Black board teaching
24	1	University questions		
25	1	ICT class		
26	1	Test		
Unit 4				
27	1	Classical statistics- microscopic and macroscopic systems- ensembles	T2(388)	PPT
28	1	Basic postulates of statistical mechanics- Probability- Thermodynamic probability	T2(392)	PPT
29	2	Boltzmann theorem on entropy and probability- Maxwell-Boltzmann statistics	T2(398)	Black board teaching
30	2	Maxwell-Boltzmann energy distribution law	T3(415)	Black board teaching
31	1	Maxwell Boltzmann velocity distribution Law.	T2(434)	Black board teaching
32	1	University questions		
33	1	ICT class		
34	1	Test		
Unit 5				
35	1	Quantum statistics- introduction- phase space	T2(452,380)	PPT
36	2	Planck's law of black body radiation (derivation) - Deduction of Wien's and Rayleigh Jean's law	T2(310)	Black board teaching
37	2	Bose-Einstein statistics- Bose- Einstein distribution law	T2(452,458)	Black board teaching
38	2	Photon gas- Fermi-Dirac Distribution Law- Electron gas	T2(462,465)	Black board teaching
39	2	Comparison of the three Statistics	T2(476)	PPT
40	1	University questions		
41	1	ICT class		
42	1	Test		

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MANGAYARKARASI

LESSON PLAN

PROGRAMME: B.Sc., Physics	SEMESTER/ YEAR: VI / 2021-22
COURSE: DIGITAL ELECTRONICS	COURSE CODE:SPHJC63
FACULTY 'S NAME: Mrs. D.SUDHA	TOTAL HOURS : 60 Hours

Course Objective

This course is designed to

- i. Enable the students to understand the aspects of Digital electronics in a lucid and comprehensive manner.

Course Outcomes

At the end of the course, the students will be capable of

CO	Course Outcome
CO1	To identify and examine the structure of various number system and its application in digital design.
CO2	Analyze different types of digital electronic circuit using various mapping and logical tools and know the techniques to prepare the most simplified circuit using various mapping and mathematical methods.
CO3	Implement different types of adder and subtractor, also to design different types of coder and multiplexer circuits.
CO4	Analyse flip - flop circuit, counters, shift registers and understand their operation.
CO5	Select proper tools for A/D & D/A conversion

DIGITAL ELECTRONICS

CREDIT - 4

UNIT I: Number System

Number system-Binary, decimal, octal, hexadecimal (conversion from one to another)- binary addition- binary subtraction- binary subtraction by 1's and 2's complement method- Basic laws of Boolean Algebra-properties-Principle of duality- De-Morgan's theorem-proof.

UNIT II: Logic Gates

Positive and negative logic-logic gates-OR, AND, NOT, NAND and EX-OR gates- DRL-OR gate, AND gate-RTL NOT gate-DTL NOR gate- DTL NAND gate- NAND as universal gate- NOR as universal gate--Sum of products(SOP)- Karnaugh's map-2 variable,3 variable and 4 variable-simplification using k-map.

UNIT III: Arithmetic circuits

Half adder- full adder- 4 bit binary adder- half subtractor- full subtractor- 4 bit binary subtractor- Multiplexer(MUX)- 4 to 1 MUX- Demultiplexer (DMUX)- 1 to 4 DMUX- Encoder- 8 to 3 encoder- decimal to BCD encoder-decoder- 3 to 8 decoder- BCD to decimal decoder-BCD to seven segment decoder.

UNIT IV: Timers, Flip-flops and registers

Timer- IC 555 monostable and astable multivibrators- flip flops- RS flip flops (using NAND and NOR)- edge triggered RS flip flop- JK flip flop- JK master slave flip flop- D flip flop- register- serial in serial out shift register.

UNIT V: Counters, memories and data converters

Counters- Ring counter- decade counter-semiconductor memories-ROM-PROM- applications- RAM- Dynamic RAM (DRAM)-Digital to analog converter(D/A)- binary ladder type-analog to decimal converter(A/D)- parallel A/D converter.

Text Book:

1. Digital principles and applications : Albert Paul Malvino , Donald P. Leach , TataMcGraw Hill
2. Digital Fundamentals : V.Vijayendran
3. Digital electronics and logic design :Jaydeep Chakravorty , University Press.

COURSE PLAN- VI SEMESTER 2021-22

S No.	HOURS	TOPIC	BOOK & PAGE NO.	TEACHING MODE
UNIT-1				
1	3	Number system-Binary, decimal, octal, hexadecimal (conversion from one to another)	T2 – 1 to 18	BB(Blackboard)
2	1	Binary addition- Binary subtraction	T2 – 21 to 28	BB(Blackboard)
3	1	Binary subtraction by 1's and 2's complement method	T2 – 31 to 33	BB(Blackboard)
4	2	Basic laws of Boolean Algebra-properties- Principle of duality- De-Morgan's theorem-proof.	T2 – 92 to 115	BB(Blackboard)
5	1	UNIVERSITY QUESTIONS		
6	1	TEST		
UNIT-2				
7	1	Positive and negative logic	T2 – 64 to 65	Lecture mode
8	2	logic gates-OR, AND, NOT, NAND and EX-OR gates	T2 – 66 to 72	Lecture mode
9	1	DRL-OR gate, AND gate	https://youtu.be/9lqwSalDm2g	Video Class
10	1	RTL NOT gate	https://youtu.be/Jar8gw7oyGQ	Video Class
11	1	DTL NOR gate- DTL NAND gate	https://youtu.be/eUUoBtJAmVI	Video Class
12	1	NAND as universal gate- NOR as universal gate	T2 – 115 to 127	Lecture mode
13	2	Sum of Products(SOP)- Karnaugh's map-2 variable,3 variable and 4 variable-simplification using k-map.	T2 – 73 to 86	BB(Blackboard)

14	1	UNIVERSITY QUESTIONS		
15	1	ICT CLASS		
16	1	TEST		
UNIT-3				
17	2	Half adder- full adder- 4 bit binary adder	T2 – 201 to 212	Lecture mode
18	2	Half subtractor- full subtractor- 4 bit binary subtractor	T2 – 216 to 227	Lecture mode
19	1	Multiplexer(MUX)- 4 to 1 MUX	T2 – 230 to 239	Lecture mode
20	1	Demultiplexer (DMUX)- 1 to 4 DMUX	T2 – 240 to 242	BB(Blackboard)
21	1	Encoder- 8 to 3 encoder- decimal to BCD encoder	T2 – 251 to 253	Lecture mode
22	2	decoder- 3 to 8 decoder- BCD to decimal decoder- BCD to seven segment decoder.	T2 – 242 to 250 , 253 to 258	BB(Blackboard)
23	1	UNIVERSITY QUESTIONS		
24	1	TEST		
UNIT-4				
25	1	Timer- IC 555 monostable and astable multivibrators	T1 – 201 to 216	PPT
26	2	Flip flops- RS flip flops (using NAND and NOR)	T2 – 272 to 273 , 276 to 283	PPT
27	1	Edge triggered RS flip flop	T2 – 273 to 276	BB(Blackboard)
28	1	JK flip flop- JK master slave flip flop	T2 – 287to 297	BB(Blackboard)
29	1	D flip flop- register- serial in serial out shift register.	T2 – 283 to 287, 300 to 307	Video Class
30	1	UNIVERSITY QUESTIONS		
31	1	ICT CLASS		
32	1	TEST		
UNIT-5				

33	1	Counters- Ring counter- decade counter	T2 – 308 to 311	Black Board Teaching
34	2	semiconductor memories- ROM-PROM- applications	T2 –353 to 359	Black Board Teaching
35	1	RAM- Dynamic RAM (DRAM)	T2 – 337 to 345	Video Class
36	1	Digital to analog converter(D/A)- binary ladder type	T1 – 273 to 283	Black Board Teaching
37	2	Analog to decimal converter(A/D)- parallel A/D converter.	T1 – 287 to 298	Black Board Teaching
	1	UNIVERSITY QUESTIONS		
	1	ICT CLASS		
	1	TEST		

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LESSON PLAN

PROGRAMME: B.Sc., Physics	SEMESTER / YEAR: VI / 2021-22
COURSE: Electronic Communication	COURSE CODE: SELJA61
FACULTY 'S NAME: Mrs. D. Sudha	TOTAL HOURS: 60 hrs Credit: 4

SYLLABUS

Objectives:

This course is designed to understand the basics of electronic communication (transmission, reception) and the processing of information between two or more locations with use of electronic circuits.

COURSE OUTCOME:

CO1: Apply the knowledge of statistical theory of communication and explain the conventional digital communication system. Also, evaluate the performance of digital communication.

CO2: Analyse analog communication in time and frequency domain. In addition, the importance of noise considerations in communication system also analyzed

CO3: The depth knowledge of different types of analog communication system and different modulation techniques used in these systems

CO4: Understand the key modules of digital communication systems with emphasis on digital modulation techniques.

CO5: explain different types of wave guides and their respective modes of propagation. Analyze typical microwave networks using impedance, admittance, transmission and scattering matrix representation.

Unit I

Introduction and block diagram of generalized communication system, role of each block viz. Information source, transmitter, channel/ communication media and receiver. Types of communication systems—simplex and duplex systems, analog and digital systems. Electromagnetic spectrum used in communication, concept of bandwidth.

Unit II

Modulation - Need of modulation and types of modulation. Amplitude Modulation- Principle - mathematical expression- modulation index- percentage (%) modulation- side bands and frequency spectrum- power distribution. Concepts of DSB, SSB & VSB.



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Unit III

Frequency Modulation – Principle - mathematical expression, modulation index, side bands. Comparison of AM and FM. AM & FM Broadcast Transmitters – Block diagram and working of each block. Demodulation - Amplitude demodulation (Diode detector), Frequency demodulation (Foster Seeley discriminator)

Unit IV

Digital communication-baseband transmission and reception-digital carrier system-PCM, Delta modulation, generation and demodulation, Signal to Noise ratio - Digital modulation schemes-ASK, FSK, PSK, WDM(Qualitative Only)

Unit V

(Block diagram approach only) Microwave communication – transmitter-receiver - repeater, Satellite communication-Optical fibre link, satellite system - Cellular radio system-Global system for mobile(GSM) – CDMA-GPRS-EDGE-Miscellaneous Mobile system

Text Book:

- T1. Communication Electronics – Frenzel 3rd Edition (MGH)
- T2. Electronic Communication System – Wayne Tomasi
- T3. Principles of Communication engineering- Anokh Singh and A. K. Chhabra
- T4: Modern Physics- R. Murugesan

COURSE PLAN- VI SEMESTER 2021-22

S N o	HOUR S	TOPIC	BOOK	Page number
UNIT-1				
1	2	Introduction and block diagram of generalized communication system, role of each block viz. Information source, transmitter, channel/ communication media and receiver.	T2 – 30,869	Black board teaching
2	3	Types of communication systems– simplex and duplex systems, analog and digital systems.	T2 – 870 to 872, 364,365, 57 to 60	Black board teaching
3	3	Electromagnetic spectrum used in communication, concept of	T2 – 32 to 38	Black board teaching



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		bandwidth.		
4	1	University Questions		
5	1	ICT class		
6	2	Test		
Unit 2				
7	1	Modulation - Need of modulation and types of modulation.	T3-139, 140	Black board teaching
8	3	Amplitude Modulation- Principle - mathematical expression- modulation index- percentage (%) modulation- side bands and frequency spectrum- power distribution.	T3-140 to 150	Black board teaching
9	3	Concepts of DSB, SSB & VSB.	T3- 154 to 158	Videos
10	1	University Questions		
11	1	ICT class		
12	2	Test		
Unit 3				
13	2	Frequency Modulation – Principle - mathematical expression, modulation index, side bands.	T3- 158 to 182	Black board teaching
14	3	Comparison of AM and FM. AM & FM Broadcast Transmitters – Block diagram and working of each block.	T4-	Black board teaching
15	1	Demodulation	T3- 187	Black board teaching
16	2	Amplitude demodulation (Diode detector)	T3- 187 to 191	Black board teaching
17	2	Frequency demodulation (Foster Seeley discriminator)	T3- 195 to 197	Black board teaching
18	1	University questions		
19	1	ICT class		
20	2	Test		
Unit 4				
21	1	Digital communication-baseband	T2 – 471 to 474	PPT



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		transmission and reception-digital carrier system		
22	1	PCM	T2 – 428 to 431	PPT
23	1	Delta modulation, generation and demodulation	T2 – 455 to 457	Black board teaching
24	3	Signal to Noise ratio - Digital modulation schemes-ASK, FSK (Qualitative Only)	T2 – 1048,1049, 368 to 379	Black board teaching
25	2	Digital modulation schemes- PSK, WDM(Qualitative Only)	T3- 206 to 208	Black board teaching
26	1	University questions		
27	1	ICT class		
28	2	Test		
Unit 5				
29	2	(Block diagram approach only) Microwave communication – transmitter-receiver, repeater	https://en.wikipedia.org/wiki/Microwave_transmission	Videos
30	2	Satellite communication	T3- 491 to 496	Black board teaching
31	2	Optical fibre link, satellite system	T3- 500 to 503	Black board teaching
32	1	Cellular radio system-Global system for mobile(GSM)	T3- 508 to511	Black board teaching
33	1	CDMA-GPRS-EDGE-Miscellaneous Mobile system	T3- 512 to 514	Black board teaching
34	1	University questions		
35	1	ICT class		
36	1	Test		

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LESSON PLAN

PROGRAMME:III BSC PHYSICS & III BA TAMIL	SEMESTER/ YEAR: 6 th Semester,2021-22
COURSE:INTRODUCTION TO INTERNET	COURSE CODE:SCSJN61
FACULTY 'S NAME: 1.A.Sobhana Rhosaline 2.T.Uma Jothi.	TOTAL HOURS:30

SYLLABUS

Objectives:

1. The main aim of subject to know all the internet usage.
2. It knowledge the students learning html,search engine,email,protocols etc.

COURSE OUTCOME:

CO1:To know about the growth of internet and history and understanding the concept TCP

CO2:Understand the connectivity and connection of internet

CO3:To know the concept of browser and search engine

CO4:Classify Email and structure and server.

CO5: To know the use of various concept of HTML,tables,form

Unit I

Internet- Growth of Internet and ARPANet- Owners of the Internet- Anatomy of Internet- History of WWW- Basic Internet Terminologies- Net etiquette- Internet Applications- Commerce on the Internet- Governance on the Internet- Impact of Internet on Society- TCP/IP Internet Technology and Protocols- Packet Switching Technology- Internet Protocols- TCP/IP- Router- Internet Addressing Scheme- Machine Addressing- E-mail Addresses- Resource Addresses.



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Unit II

Connectivity types- Setting up a connection- Hardware requirements- Selection of a modem- Software requirements- Internet accounts by ISP-ISDN- Protocol options-service option- network definition-common terminology-node-Host-workstation-network administrator- network security-network components-servers-client server-communication media-type of networks-addressing internet-DNS-network topology-ethernet-FDDI-ATM.

Unit III

Browsers- What is a browser?- Parts of a browser window- Running a browser- Working with a Browser- What is search engine- Types of search engines- Search and meta search engines.

Unit IV

E-mail- E-mail Networks and Servers- E-mail Protocols- Structure of E-mail- Attachments- E-mail Clients- E-mail Clients - web based- E-mail Address book- Signature File.

Unit V

Introduction to HTML- HTML browsers- Different versions of HTML- HTML tags- Document overview- Header elements- Section headings- Block headings- Lists-Inline elements- Images working with Tables, Forms, Frames.

Text Book:

PDF(E-RESOURCES)



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Course plan 6th semester 2021-22

S No	HOURS	TOPIC	BOOK	TEACHING MODE	PAGE NO
UNIT-1					
1	1	Internet, Growth of Internet and ARPANet, Owners of the Internet, Anatomy of Internet, History of WWW	T1	LM	1 -3
3	1	Basic Internet Terminologies, Net etiquette	T1	BB& LM	3-4
4	1	Internet Applications, Commerce on the Internet, Governance on the Internet ,	T1	GD	5-7
5	1	Impact of Internet on Society, TCP/IP Internet Technology and Protocols Packet Switching Technology	T1	BB& LM	7-9
6	1	Internet Protocols, TCP/IP, Router, Internet Addressing Scheme, Machine Addressing, E-mail Addresses, Resource Addresses	T1	BB& LM	9-13
7	1	Test & Assignment	T1		
UNIT-2					
8	1	Interconnectivity:Connectivity types, Setting up a connection, Hardware requirements, Selection of a modem	T1	BB& LM	14-16
9	1	Software requirements, Internet accounts by ISP-ISDN, Protocol options, Service options	T1	BB& LM	17-18
10	1	Network Definition, Common terminologies, Node, Host, Workstation, Network Administrator	T1	BB& LM	17-20



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11	1	Network security, Network Components	T1	BB& LM	20-22
12	1	Servers, Client Sever	T1	BB& LM	22
13	1	Communication Media	T1	BB& LM	23-24
14	1	Types of Networks ,Addressing in Internet	T1	BB& LM	25-30
15	1	DNS	T1	BB& LM	30-31
16	2	Network topologies, Ethernet, FDDI, ATM	T1	BB& LM	32-44
17	1	TEST & ASSIGNMENT	T1		
18	1	Browsers, What is a browser?	T1	GD	45
19	1	Parts of a browser window	T1	BB& LM	45
20	1	Running a browser, Working with a Browser, What is search engine?, Types of search engines	T1	BB& LM	46-49
21	1	Search and meta search engines	T1	BB& LM	50
22	1	ICT CLASS(What is search engine?, Types of search engines)	T1		
23	1	E-mail, E-mail Networks and Servers	T1	BB& LM	52
24	1	E-mail Protocols, Structure of E-mail, Attachments	T1	BB& LM	52-54
25	1	E-mail Clients, E-mail Clients - web based, E-mail Address book, Signature File	T1	BB& LM	54-55
26	1	ICT CLASS(E-mail Protocols)	T1		



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27	1	Introduction to HTML, HTML browsers, Different versions of HTML, HTML tags, Document overview	T1	BB& LM	56-59
28	1	Header elements, Section headings, Block headings, Lists-Inline elements	T1	BB& LM	59 - 61
29	1	Images working with Tables, Forms, Frames	T1	BB& LM	61 - 63
30	1	TEST & UNIVERSITY QUESTIONS	T1		

LM-LECTURE MODE

BB-BLACK BOARD

GD-GROUP DISCUSSION

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LESSON PLAN

PROGRAMME: B SC., PHYSICS	SEMESTER/ YEAR: VI / 2021-22
COURSE: OPTO ELECTRONICS	COURSE CODE: SPHJS61
FACULTY 'S NAME:MRS.M.GOWRI	TOTAL HOURS: 30 HOURS

SYLLABUS

Course Objective

This course is designed to

1. Identify different types of bonding in Solid substances
2. Gain knowledge about magnetic and dielectric properties of crystalline structures
3. Learn concepts of superconductivity and its applications

Course Outcomes

At the end of the course, the students will be capable of

CO	Course Outcome
CO1	Realize the importance of LCD & LED material
CO2	Enable the students to understand Laser and applications of different types of Laser
CO3	Analysis the concept of photo detector and photo diode
CO4	Describe the optical fibre and light transmission
CO5	Analysis the uses of fibre optic communication



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Unit I

Introduction – PN junction as a Light Source (LED) – LED materials – Advantages
– LCD - Characteristics and action of LCD – Advantages.

Unit II

Laser- Introduction– characteristics of Laser– Spontaneous and stimulated emission– Einstein coefficients- condition for population inversion– three level scheme– semi conductor.

Unit III

Photo detector- characteristics of photo detectors– PN junction photo detector– PIN photo diode- Avalanche photo diode- Photo transistor.

Unit IV

Introduction – principle of optical fibre – light transmission in a optical fibre
– Acceptance angle – Numerical aperture.

Unit V

Fibre index profiles – Step index, graded fibre (transmission of signals) – Advantages of fibre optic communications, optical switching – Logic gates.

Text Book:

1. MATERIALS SCIENCE – DR.M.ARUMUGAM.
2. OPTICAL FIBRE COMMUNICATIONS-JOHN M.SENIOR
3. Optical fibres and Fibre Optic Communication – Sabir Kumar Sarkar IV Revised Edition 2003.

Reference Books:

1. Opto Electronics – Wilson & Hawker, Prentice Hall of India 2004.
2. Compiled Material



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COURSE PLAN- VI SEMESTER 2021-22

S No	HOURS	TOPIC	BOOK WITH PAGE NO	TEACHING MODE
UNIT-1				
1.	1	Introduction of light sources	CM(1)	ppt
2.	1	PN junction as a Light Source (LED)	CM(2)	Black board teaching
3.	1	LED materials and Advantages	CM(3)	Peer teaching
4.	1	LCD Characteristics and action of LCD, LCD Advantages.	CM(5,6,7)	Black board teaching
5.	1	UNIVERSITY QUESTIONS		
6.	1	ICT CLASS		
7.	1	TEST		
UNIT-2				
8.	1	Laser Introduction characteristics of Laser	CM(9,10)	Peer teaching
9.	1	Einstein coefficients ,Spontaneous and stimulated emission	CM(11,16,17)	Black board teaching
10	1	condition for population inversion ,Three level scheme, semi conductor	CM(19-22)	ppt
11	1	UNIVERSITY QUESTIONS		
12	1	ICT CLASS		
13	1	TEST		
UNIT-3				
14	1	Photo detector, characteristics of photo detectors .	CM(24)	Black board teaching
15	1	PN junction photo detector, Photo transistor	CM(26,28)	Black board teaching



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16	1	PIN photo diode, Avalanche photo diode	CM(27,28)	Black board teaching
17	1	UNIVERSITY QUESTIONS		
18	1	ICT CLASS		
19	1	TEST		
UNIT-4				
20	1	Introduction, principle of optical fibre.	CM(30)	Black board teaching
21	1	light transmission in a optical fibre	CM(31,34)	ppt
22	1	Acceptance angle, Numerical aperture.	CM(36,37)	Black board teaching
23	1	UNIVERSITY QUESTIONS		
24	1	ICT CLASS		
UNIT-5				
25	1	Fibre index profiles, Step index	CM(39)	Black board teaching
26	1	graded fibre (transmission of signals)	CM(41)	Black board teaching
27	1	Advantages of fibre optic communications	CM(43)	Black board teaching
28	1	optical switching, Logic gates	CM(48,50)	ppt
29	1	UNIVERSITY QUESTIONS		
30	1	TEST		

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LESSON PLAN

PROGRAMME: B.Sc.,PHYSICS	SEMESTER/ YEAR: VI / 2021-22
COURSE: Solid State Physics	COURSE CODE: SPHJC52
FACULTY'S NAME: Mrs.N.Shamima Banu	TOTAL HOURS: 60

SYLLABUS

OBJECTIVE: This course enables the students to Identify different types of bonding in Solid substances, gain knowledge about magnetic and dielectric properties of crystalline structures and to Learn concepts of superconductivity and its applications

COURSE OUTCOME:

- CO1:** Learning the concepts of crystal structures and its types
- CO2:** Explaining Thermal Conductivity of metals and applications of superconductors
- CO3:** Developing knowledge about dia, para and ferromagnetic materials and concepts of hysteresis
- CO4:** Discuss dielectrics and types of polarisation
- CO5:** Enable the students to understand Laser and applications of different types of Laser

Unit I:

Bonding in Solids – Types of bonding in solids – ionic, covalent, metallic, molecular and hydrogen bonds – Crystal Structure – Crystal lattice and crystal structure – unit cell – Bravi's lattice, classification of crystals – Miller indices – structure of diamond and zinc blende – Thermal Properties – Concept of phonon – Heat capacity of solids – Limitations of Einstein's theory, Debye's theory of lattice specific heat; thermal expansion of solids (qualitative).

Unit II:

Free electron theory of metals; Electron drift, mobility, mean free path, relaxation time, Electrical and Thermal conductivities of metals – Wiedmann Franz law; Sources of resistivity of metals – Metthiessen's rule; Super conductivity – applications, BCS theory.

UNIT III:

Different types of magnetism – dia, para, ferro, antiferro and fermagnetism: a. Langevin's theory of dia & para magnetism 2. Wie's theory of ferromagnetism – Magnetic materials – Properties and application – hard and soft magnetic materials, magnetostriction materials, ferrites and concepts of domains and hysteresis.



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UNIT IV:

Dielectrics, polarization, polar and non-polar dielectrics – dielectric constant, Polarisability Clausius Mossotti relation – Different types of Polarization – electronic, ionic, orientational, space charge – Dependence of polarization on frequency and temperature; Dielectric loss sources; Dielectric strength and break-down – contributing.

UNIT V:

Laser materials – Instrumentation of radiation with matter (quantitative) – Emission and absorption of light spontaneous and stimulated emission; Laser Principle – Properties – applications; construction, working and characteristics of Ruby laser, He-Ne laser. Semiconductor laser.

Text Book:

1. Fundamentals of solid state physics by Saxena, Gupta Saxena – Pragati Prakashan X Revised Edition 1991.
2. Introduction to Solids by Azaraoff – TMH, Reprint 1978.
3. Solid State Physics – S.O. Pillai, New Age International Publishers

Reference books:

1. Solid State Physics- S.O. Pillai
2. Engineering Physics – Dr. P. Mani
3. Compiled Material

COURSE PLAN- VI SEMESTER 2021-22

S No	HOURS	TOPIC	BOOK WITH PAGE NO.	TEACHING MODE
UNIT-1				
1	1	Bonding in Solids – Types of bonding in solids – ionic, covalent, metallic, molecular and hydrogen bonds	T3(52) T3(65) T3(72) T3(74) T3(76)	Black Board Teaching
2	1	Crystal Structure – Crystal lattice and crystal structure – unit cell	CM (2,4,7)	PPT
3	2	Bravi's lattice, classification of crystals – Miller indices	CM(10,15) CM(49)	Black Board Teaching
4	2	structure of diamond and zinc blende	T3 (110,111)	Black Board Teaching
5	1	Thermal Properties – Concept of phonon – Heat capacity of solids	T3(333)	Black Board Teaching
6	2	Limitations of Einstein's theory, Debye's theory of lattice specific	T3(340,343)	Black Board Teaching



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		heat; thermal expansion of solids (qualitative)		
7	1	UNIVERSITY QUESTIONS		
8	1	ICT CLASS		
9	1	TEST		
UNIT-2				
10	1	Free electron theory of metals	CM(90)	Black Board Teaching
11	1	Electron drift, mobility, mean free path, relaxation time	CM (93)	PPT
12	2	Electrical and Thermal conductivities of metals	CM(94,97)	Black Board Teaching
13	2	Wiedmann Franz law; Sources of resistivity of metals – Metthiessen's rule	CM(100)	Black Board Teaching
14	2	Super conductivity – applications	CM(120,127)	PPT
15	1	BCS theory	T3(385)	Video
16	1	UNIVERSITY QUESTIONS		
17	1	ICT CLASS		
18	1	TEST		
UNIT-3				
19	1	Different types of magnetism – dia, para, ferro, antiferro and ferromagnetism	CM(144,145, 146,148)	Peer Teaching
20	2	Langevin's theory of dia & para magnetism	T3(446)	Black Board Teaching
21	2	Weiss theory of ferromagnetism	CM(149)	Black Board Teaching
22	1	Magnetic materials – Properties and application	CM(200)	PPT
23	1	hard and soft magnetic materials,	CM(161,162)	Video
24	1	magnetostriction materials, ferrites	T3(506)	PPT
25	1	concepts of domains and hysteresis.	CM(155)	Black Board Teaching
26	1	UNIVERSITY QUESTIONS		
27	1	ICT CLASS		
28	1	TEST		
UNIT-4				



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29	1	Dielectrics, polarization, polar and non-polar dielectrics	CM(171)	Black Board Teaching
30	1	dielectric constant, Polarisability	CM(173)	Black Board Teaching
31	2	Clausius Mossotti relation	CM(188)	Black Board Teaching
32	2	Different types of Polarization – electronic, ionic, orientational, space charge	CM(177)	Black Board Teaching, PPT
33	1	Dependence of polarization on frequency and temperature	T3(671)	Black Board Teaching
34	2	Dielectric loss sources; Dielectric strength and break-down – contributing	CM(195,196)	PPT
35	1	UNIVERSITY QUESTIONS		
36	1	ICT CLASS		
37	1	TEST		
UNIT-5				
38	1	Laser materials – Instrumentation of radiation with matter (quantitative)	CM(207)	Black Board Teaching
39	2	Emission and absorption of light spontaneous and stimulated emission	CM(209)	Black Board Teaching
40	2	Laser Principle – Properties – applications	CM(215,221) T3(724)	Peer Teaching
41	1	construction, working and characteristics of Ruby laser	T3(717)	Animated Video
42	1	He-Ne laser	T3(718)	Peer teaching
43	2	Semiconductor laser	CM(225)	Animated Video
44	1	UNIVERSITY QUESTIONS		
45	1	ICT CLASS		
46	1	TEST		

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