



ESTD : 2007



Sri Indu Institute of Engineering and Technology (Autonomous)

(Formerly RVR Institute of Engineering & Technology)

An Autonomous Institution Under UGC

NAAC Accredited. Recognized Under 2(f) of UGC Act 1956

EAMCET CODE: INDI

Approved by AICTE, New Delhi, & Affiliated to JNTUH, Hyderabad.

JNTUH CODE: X3

COURSE FILE

ON

APPLIED PHYSICS

Course Code – AP202BS

**I B. Tech Semester-II
A.Y. 2022-23**

Prepared by

**Mr. P. Srinivasa Chary
Asst. Professor**

Head of the Department
Department of H&S
SRI INDU INSTITUTE OF ENGG & TECH
Sheriguda(VIII), Ibrahimpatnam (M) R.R. Dist-501 510
& TECH
Sheriguda(VIII), Ibrahimpatnam (M) R.R. Dist-501 510

PRINCIPAL
Sri Indu Institute of Engineering & Tech.
Sheriguda(VIII), Ibrahimpatnam (M) R.R. Dist. Telangana-501 510
R.R. Dist. Telangana-501 510
Sheriguda(VIII), Ibrahimpatnam
R.R. Dist. Telangana-501 510.



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INSTITUTE VISION & MISSION

Vision:

To become a premier institute of academic excellence by providing the world class education that transforms individuals into high intellectuals, by evolving them as empathetic and responsible citizens through continuous improvement.

Mission:

- **IM1:** To offer outcome-based education and enhancement of technical and practical skills.
- **IM2:** To Continuous assess of teaching-learning process through institute-industry collaboration.
- **IM3:** To be a centre of excellence for innovative and emerging fields in technology development with state-of-art facilities to faculty and students' fraternity.
- **IM4:** To Create an enterprising environment to ensure culture, ethics and social responsibility among the stakeholders.

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Khalsa Ibrahimpatnam, Sheriguda(V), Ibrahimpatnam(M), Ranga Reddy Dist., Telangana – 501510

PROGRAM OUTCOMES

PO1: ENGINEERING KNOWLEDGE: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: PROBLEM ANALYSIS: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: DESIGN/DEVELOPMENT OF SOLUTIONS: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: CONDUCT INVESTIGATIONS OF COMPLEX PROBLEMS: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: MODERN TOOL USAGE: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO6: THE ENGINEER AND SOCIETY: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: ENVIRONMENT AND SUSTAINABILITY: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: ETHICS: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: INDIVIDUAL AND TEAM WORK: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: COMMUNICATION: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, give and receive clear instructions.

PO11: PROJECT MANAGEMENT AND FINANCE: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: LIFE-LONG LEARNING: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change


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SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY**B.Tech. in COMPUTER SCIENCE AND ENGINEERING
COURSE STRUCTURE, I YEAR SYLLABUS (BR22 Regulations)****Applicable from Academic Year: 2022-23 Batch****I Year I Semester**

S. No.	Course Code	Course Title	L	T	P	Credits
1.	MA101BS	Matrices and Calculus	3	1	0	4
2.	CH103BS	Engineering Chemistry	3	1	0	4
3.	CS103ES	Programming for Problem Solving	3	0	0	3
4.	EE101ES	Basic Electrical Engineering	2	0	0	2
5.	ME101ES	Computer Aided Engineering Graphics	1	0	4	3
6.	CS106ES	Elements of Computer Science & Engineering	0	0	2	1
7.	CH106BS	Engineering Chemistry Laboratory	0	0	2	1
8.	CS107ES	Programming for Problem Solving Laboratory	0	0	2	1
9.	EE102ES	Basic Electrical Engineering Laboratory	0	0	2	1
		Induction Program				
		Total	12	2	12	20

I Year II Semester

S. No.	Course Code	Course	L	T	P	Credits
1.	MA201BS	Ordinary Differential Equations and Vector Calculus	3	1	0	4
2.	AP202BS	Applied Physics	3	1	0	4
3.	ME202ES	Engineering Workshop	0	1	3	2.5
4.	EN204HS	English for Skill Enhancement	2	0	0	2
5.	EC201ES	Electronic Devices and Circuits	2	0	0	2
6.	AP205BS	Applied Physics Laboratory	0	0	3	1.5
7.	CS201ES	Python Programming Laboratory	0	1	2	2
8.	EN207HS	English Language and Communication Skills Laboratory	0	0	2	1
9.	CS203ES	IT Workshop	0	0	2	1
10.	*MC201ES	Environmental Science	3	0	0	0
		Total	13	4	12	20

APPLIED PHYSICS
(Course Code: AP202BS)

B. Tech. I Year II Sem.

L T P C
3 1 0 4

Pre-requisites: 10 + 2 Physics

Course Objectives: The objectives of this course for the student are to:

1. Understand the basic principles of quantum physics and band theory of solids.
2. Understand the underlying mechanism involved in construction and working principles of various semiconductor devices.
3. Study the fundamental concepts related to the dielectric, magnetic and energy materials.
4. Identify the importance of nanoscale, quantum confinement and various fabrications techniques.
5. Study the characteristics of lasers and optical fibres.

Course Outcomes: At the end of the course the student will be able to:

1. Understand physical world from fundamental point of view by the concepts of Quantum mechanics and visualize the difference between conductor, semiconductor, and an insulator by classification of solids.
2. Identify the role of semiconductor devices in science and engineering Applications.
3. Explore the fundamental properties of dielectric, magnetic materials and energy for their applications.
4. Appreciate the features and applications of Nano materials.
5. Understand various aspects of Lasers and Optical fiber and their applications in diverse fields.

UNIT - I: QUANTUM PHYSICS AND SOLIDS

Quantum Mechanics: Introduction to quantum physics, blackbody radiation – Stefan-Boltzmann’s law, Wein’s and Rayleigh-Jean’s law, Planck’s radiation law - photoelectric effect - Davisson and Germer experiment –Heisenberg uncertainty principle - Born interpretation of the wave function – time independent Schrodinger wave equation - particle in one dimensional potential box.

Solids: Symmetry in solids, free electron theory (Drude & Lorentz, Sommerfeld) - Fermi-Dirac

distribution - Bloch's theorem -Kronig-Penney model – E-K diagram- effective mass of electron-origin of energy bands- classification of solids.

UNIT - II: SEMICONDUCTORS AND DEVICES

Intrinsic and extrinsic semiconductors – Hall effect - direct and indirect band gap semiconductors - construction, principle of operation and characteristics of P-N Junction diode, Zener diode and bipolar junction transistor (BJT)–LED, PIN diode, avalanche photo diode (APD) and solar cells, their structure, materials, working principle and characteristics.

UNIT - III: DIELECTRIC, MAGNETIC AND ENERGY MATERIALS

Dielectric Materials: Basic definitions- types of polarizations (qualitative) - ferroelectric, piezoelectric, and pyroelectric materials – applications – liquid crystal displays (LCD) and crystal oscillators. Magnetic Materials: Hysteresis-soft and hard magnetic materials magnetostriction, magnetoresistance -applications -bubble memory devices, magnetic field sensors and multiferroics. Energy Materials: Conductivity of liquid and solid electrolytes- superionic conductors - materials and electrolytes for super capacitors - rechargeable ion batteries, solid fuel cells.

UNIT - IV: NANOTECHNOLOGY

Nanoscale, quantum confinement, surface to volume ratio, bottom-up fabrication: sol-gel, precipitation, combustion methods – top-down fabrication: ball milling - physical vapor deposition (PVD) - chemical vapor deposition (CVD) - characterization techniques - XRD, SEM &TEM - applications of nanomaterials.

UNIT - V: LASER AND FIBER OPTICS

Lasers: Laser beam characteristics-three quantum processes-Einstein coefficients and their relations-lasing action - pumping methods- ruby laser, He-Ne laser , CO₂ laser, Argon ion Laser, Nd:YAG laser-semiconductor laser-applications of laser.

Fiber Optics: Introduction to optical fiber- advantages of optical Fibers - total internal reflection-construction of optical fiber - acceptance angle - numerical aperture- classification of optical fibers-losses in optical fiber - optical fiber for communication system - applications.

TEXT BOOKS:

1. M. N. Avadhanulu, P.G. Kshirsagar & TVS Arun Murthy” A Text book of Engineering Physics”-S. Chand Publications, 11th Edition 2019.
2. Engineering Physics by Shatendra Sharma and Jyotsna Sharma, Pearson Publication,2019
3. Semiconductor Physics and Devices- Basic Principle – Donald A, Neamen, Mc Graw Hill, 4thEdition,2021.
4. B.K. Pandey and S. Chaturvedi, Engineering Physics, Cengage Learning, 2ndEdition,2022.
5. Essentials of Nanoscience & Nanotechnology by Narasimha Reddy Katta, Typical Creatives NANO DIGEST, 1st Edition, 2021.

REFERENCE BOOKS:

1. Quantum Physics, H.C. Verma, TBS Publication, 2nd Edition 2012.
2. Fundamentals of Physics – Halliday, Resnick and Walker, John Wiley & Sons, 11th Edition, 2018.
3. Introduction to Solid State Physics, Charles Kittel, Wiley Eastern, 2019.
4. Elementary Solid State Physics, S.L. Gupta and V. Kumar, Pragathi Prakashan, 2019.
5. A.K. Bhandhopadhyaya - Nano Materials, New Age International, 1stEdition, 2007.
6. Energy Materials a Short Introduction to Functional Materials for EnergyConversion Storage Aliaksandr S. Bandarenka, CRC Press Taylor & Francis Group
7. Energy Materials, Taylor & Francis Group, 1st Edition, 2022.



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Khalsa Ibrahimpatnam, Sheriguda(V), Ibrahimpatnam(M), Ranga Reddy Dist., Telangana – 501510

Course: Applied Physics (C122)

Class: I- B TECH- CSE-A

Course Outcomes

After completing this course the student will be able to:

- C122.1: Explain quantum behavior of matter and classify the solids into conductors, semiconductors and insulators. **(Understanding)(L2)**
- C122.2: Explain the various semiconductor devices and uses in different engineering applications. **(Understanding)(L2)**
- C122.3: Make use of the fundamental properties of dielectric, magnetic and energy materials for their application. **(Applying)(L3)**
- C122.4: Analyze the various fabrication techniques to prepare nano materials and nano sized devices. **(Analyzing)(L4)**
- C122.5: Explain the various laser devices and compare the uses in different fields. **(Evaluating)(L5)**
- C122.6: Applying the fiber optic principles in communication systems. **(Applying)(L3)**



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CO's Mapping with PO/PSO

Mapping of course outcomes with program outcomes:

High -3 Medium -2 Low-1

PO/CO	PO 1	PO 2	PO3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO1 1	PO1 2
C122.1	3	2	-	-	-	-	-	-	-	-	-	-
C122.2	3	2	-	-	-	-	-	-	-	-	-	-
C122.3	3	2	-	-	-	-	-	-	-	-	-	-
C122.4	3	-	-	-	-	-	-	-	-	1	-	1
C122.5	3	2	-	-	-	-	-	-	-	1	-	1
C122.6	3	2	-	-	-	-	-	-	-	1	-	1
C122	3	2	-	-	-	-	-	-	-	1	-	1



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CO-PO mapping Justification

PO1.ENGINEERING KNOWLEDGE: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2. PROBLEM ANALYSIS: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO10.COMMUNICATION: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, give and receive clear instructions.

PO12. LIFE-LONG LEARNING: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

C122.1: Explain quantum behavior of matter and classify the solids into conductors, semiconductors and insulators. (Understanding)

	Justification
PO1	student get the knowledge of the Quantum behavior of matter(level 3)
PO2	student can identify the solids into conductors, semiconductors and insulators(level 2)

C122.2: Explain the various semiconductor devices and uses in different engineering applications (Understanding)

	Justification
PO1	student acquire knowledge of working principle of P-N junction diode(level 3)
PO2	Student draw the characteristics of semiconductor photo detectors (level2)

C122.3: Make use of the fundamental properties of dielectric, magnetic and energy materials for their application. (Applying)

	Justification
PO1	Student Utilize the magnetic materials applications to identify metals(level3)
PO2	Student Utilize the dielectric, magnetic materials applications to identify materials. (level2)

C122.4: Analyze the various fabrication techniques to prepare nanomaterial and nano sized devices. (Analyzing)

	Justification
PO1	Student get knowledge on nanotechnology(level3)
PO10	Student communicate effectively nanoscience in engineering community(level1)
PO12	Student recognize the nano materials fabrication and characterization techniques in engineering field(level1)

C122.5: Explain the various laser devices and compare the uses in different fields. (Evaluating)

	Justification
PO1	Student get knowledge on laser characteristics(level3)
PO2	Student analyze the different types of laser devices(level2)
PO10	Student can apply laser principles to judge pumping methods (level1)
PO12	Student recognize the laser techniques in engineering field(level1)

C122.6: Applying the fiber optic principles in communication systems. (Applying)

	Justification
PO1	Student get knowledge on fiber optic technology(level3)
PO2	Student classify the optical fibers(lavel2)
PO10	Student communicate effectively fiber optic principles in engineering technology(level1)
PO12	Student recognize the losses associated with optical fibers(level1)



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<https://siiet.ac.in/>

Lr. No. SIET/BR22/Academic Calendar/2022/02

Date: 15.12.2022

REVISED ACADEMIC CALENDAR I B.TECH FOR THE ACADEMIC YEAR 2022-23 (BR22-REGULATIONS)

Dr. I. Satyanarayana,
Principal.

X3

To,
All the HOD's
Sir,

Sub: SIET (Autonomous)-Academic & Evaluation-Revised Academic Calendar for **I B.Tech - I & II Semesters** for the academic year 2022-2023-Reg.

The approved Academic Calendar for **I B.Tech - I & II Semesters** for the academic year 2022-23 is given below.

I-SEMESTER

S. NO	Description	Period		Duration
		From	To	
1.	Commencement of I Semester class work (including Induction programme)	03.11.2022		
2.	1 st Spell of Instructions	03.11.2022	28.12.2022	8 Weeks
3.	I Mid Examinations	29.12.2022	04.01.2023	1 Week
4.	Submission of First Mid Term Exam Marks to the Autonomous Section on or before	10.01.2023		
5.	2 nd Spell of Instructions	05.01.2023	02.03.2023	8 Weeks
6.	Second Mid Term Examinations	03.03.2023	09.03.2023	1 Week
7.	Preparation & Practical Examinations	10.03.2023	16.03.2023	1 Week
8.	Submission of Second Mid Term Exam Marks to the Autonomous Section on or before	16.03.2023		
9.	I Semester End Examinations	17.03.2023	01.04.2023	2 Weeks

II-SEMESTER

S. NO	Description	Period		Duration
		From	To	
1.	Commencement of II Semester class work	03.04.2023		
2.	1 st Spell of Instructions (including Summer Vacation)	03.04.2023	10.06.2023	10 Weeks
	Summer Vacation	15.05.2023	27.05.2023	2 Weeks
3.	I Mid Examinations	12.06.2023	17.06.2023	1 Week
4.	Submission of First Mid Term Exam Marks to the Autonomous Section on or before	23.06.2023		
5.	2 nd Spell of Instructions	19.06.2023	12.08.2023	8 Weeks
6.	II Mid Term Examinations	14.08.2023	19.08.2023	1 Week
7.	Preparation & Practical Examinations	21.08.2023	26.08.2023	1 Week
8.	Submission of Second Mid Term Exam Marks to the Autonomous Section on or before	26.08.2023		
9.	II Semester End Examinations	28.08.2023	09.09.2023	2 Weeks

Commencement of Class Work for II B.Tech I Semester - 11.09.2023

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OFFICE OF EXAMINATIONS
ACE

Sri Indu Institute of Engineering and Technology

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Copy to All the HODs, Depts. & AO:
Sheriguda (V), Ibrahimpatnam, R.R. Dist-501510.

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<https://siiet.ac.in/>

Class: CSE-A **Semester:** II **W.E.F:** 03-04-2023 **LH:-** D-107

	I 9:40- 10:30	II 10:30 - 11:20	III 11:20- 12:10	12:10- 12:45	IV 12:45- 1:35	V 1:35- 2:25	VI 2:25- 3:15	VII 3.15-4.00
MON	ENG	EDC	AP	L U N C H	ITWS/EWS LAB			PYTHON LAB(T)/ EWS(T)
TUE	ODE	EDC	AP		ITWS/EWS LAB			ODE(T)/AP(T)
WED	ODE	AP	ENG		PYTHON LAB			LIBRARY
THU	AP/ELCS LAB				ODE	EDC	AP	EWS(T)/ PYTHON LAB(T)
FRI	AP/ELCS LAB				ODE	AP	ES	AP(T)/ODE(T)
SAT	ENG	ODE	EDC		ES	ENG	EDC	ES

Course Code	Course Name	Name of the Faculty	Course Code	Course Name	Name of the Faculty
MA201BS	ODE-Ordinary Differential Equations & Vector Calculus	B.RAMADEVI	AP205BS	APLAB-Applied Physics Laboratory	P.SRINIVASACHARY/ B.SANTHI/M.JANAIAH/ M.MANISHA
AP202BS	AP-Applied Physics	P.SRINIVASACHARY	CS201ES	Python Programming Laboratory	D.SWAPNA/B.RAJASH WARI
EN204HS	ENG- English for Skill Enhancement	G.VENKAT REDDY	EN207HS	ELCS LAB-English Language and Communication Skills Laboratory	G.VENKAT REDDY/E.PRARTHANA
EC201ES	EDC-Electronics Devices and Circuits	T.BHAVANI	CS203ES	ITWS-IT Workshop	K.UMAVYSHNAVI/B.R AJITHA
ME202ES	EWS-Engineering Workshop	B.SRINUNAIK/ M.V.B.KALYAN	MC201ES	ES-Environmental Science	K.MOUNIKA

[Signature]
Class In-Charge

[Signature]
Time Table Coordinator



[Signature]
Head of The Department
Sri Indu Institute of Engg. & Tech
Main Road, Sheriguda(V),
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APPLIED PHYSICS: LESSON PLAN

Lecture hour	UNIT	Topic	Teaching Method/ Teaching Aid	Reference book
1		Unit wise Introduction of Applied physics-Syllabus	Lecture-Method/Black Board	T-2
2	UNIT –I	UNIT –I Quantum Mechanics and Solids Introduction to quantum physics	Lecture-Method/Black Board, Webreference, Video	T-2, R-1,W-1,V-1
3		Explanation of Black body radiation	Lecture-Method/Black Board	T-1,R-1
4		Derivation of of Planck’s radiation law	Lecture-Method/Black Board, ,Web reference	T-1,T-2, W-1
5		Photoelectric effect explanation with diagram Variation of Intensity and frequency	Lecture-Method/Black Board, ,Web reference	T-1,T-2, W-1
6		De-Broglie’s hypothesis and equation for wavelength	Lecture-Method/Black Board	T-1
7		Verification of dual nature of electron- Davisson-Germere experiment	Lecture-Method/Black Board,Video reference,	T-2, R-1, V-2
8		Heisenberg’s Uncertainty principle and significance of the wave function-Born’s explanation	Lecture-Method/Black Board	T-1, R-1
9		Derivation of Schrodinger’s time independent wave equation	Lecture-Method/Black Board	T-1, R-1
10		Expression for energy and wave function of electron in one dimensional box.	Lecture-Method/Black Board, Webreference	T-1,T-2, W-2
11		Problems on of Schrodinger’s wave equation and energy of electron	Lecture-Method/Black Board	T-1,T-2
12		Introduction to solids-symmetry in solids	Lecture-Method/Black Board	T-2,R-2,
13		Free electron theory of solids(Drude & Lorentz ,Sommerfeld)- Explanation	Lecture-Method/Black Board	T-2,R-2
14		Fermi-Dirac distribution function	Lecture-Method/Black Board	T-1,T-2
15		Kronig-Penny model, E-K diagram	Lecture-Method/Black Board	T-1,T-2,R-2
16		Effective mass of electron-Derivation and solids classification	Lecture-Method/Black Board	T-1
17		UNIT-II- Semiconductor Physics and Devices Intrinsic semiconductors explanation with diagram	Lecture-Method/Black Board	T-2, R-3
18	Extrinsic semiconductors explanation with diagram	Lecture-Method/Black Board	T-2,R-3	
19	Hall effect explanation-Hall coefficient and Hall voltage	Lecture-Method/Black Board	T-2,T-3	

20	UNIT-II	Explanation of formation of p-n junction diode and energy band diagram	Lecture-Method/Black Board	T-2, R-3
21		p-n junction diode under forward and reverse bias –energy band diagram	Lecture-Method/Black Board	T-2,T-3
22		Explanation of zener diode and its V -I Characteristics	Lecture-Method/Black Board	T-2
23		Construction, Principle of operation of BJT	Lecture-Method/Black Board	T-2,R-3
24		LED explanation with structure, working and V-I characteristics	Lecture-Method/Black Board,, Web reference,	T-2,R-3, W-3
25		PIN diode working principle, explanation and V-I characteristics	Lecture-Method/Black Board, Video reference,	T-2, V-3
26		Avalanche diode working principle, explanation and V-I characteristics	Lecture-Method/Black Board	T-2,T-3
27		Explanation of working principle of solar cell with structure	Lecture-Method/Black Board	T-2,T-3
28		Solar cell explanation and V-I characteristics and applications	Lecture-Method/Black Board	T-2,R-3
29	UNIT-III	UNIT-III- Dielectric, Magnetic and Energy Materials: Basic definitions	Lecture-Method/Black Board	T-1, T-2
30		Explanation of Polarization and types of polarization	Lecture-Method/Black Board	T-2,
31		Classification of dielectric materials -Ferroelectrics Piezo electrics and pyro electrics	Lecture-Method/Black Board	T-2
32		Explanation of LCD and Crystal oscillators	Lecture-Method/Black Board	T-1 T-2
33		Definitions of Magnetization ,permeability and susceptibility Hysteresis curve explanation	Lecture-Method/Black Board	T-2
34		Magnetostriction and Magneto resistance and Bubble memory devices	Lecture-Method/Black Board, Video reference,	T-2, V-4
35		Magnetic field sensors and Multi ferroics-Application	Lecture-Method/Black Board	T-2
36		Conductivity of liquid and solid electrolytes, superionic conductors	Lecture-Method/Black Board ,	T-2 ,
37		Materials and electrolytes for super capacitors	Lecture-Method/Black Board ,	T-2,R-4
38		Explanation of rechargeable ion batteries-LI-ion battery	Lecture-Method/Black Board , Video reference,	T-2,R-4, V-5
39		Solid fuel cell and applications	Lecture-Method/Black Board ,	T-2,R-4
40	UNIT-IV: Nanotechnology	UNIT-IV: Nanotechnology Introduction to Nanotechnology –quantum confinement	Lecture-Metho	T-2, R-5
41		Surface to volume ratio-Explanation	Lecture-Method/Black Board	T-2, R-5
42		Bottom up fabrication: Sol-gel, Precipitation method	Lecture-Method/Black Board	T-2,T-4
43		Combustion method, top up fabrication: Ball milling, PVD Methods	Lecture-Method/Black Board	T-2,T-4

44	UNIT-IV	Physical vapor deposition method	Lecture-Method/Black Board	T-2
45		Chemical vapor deposition method	Lecture-Method/Black Board, Video reference,	T-2,T-4, V-6
46		Characterization techniques : XRD and SEM	Lecture-Method/Black Board	T-2,R-5
47		Characterization technique: TEM and applications of nano materials	Lecture-Method/Black Board	T-2,R-5
48	UNIT-V	UNIT-V- Lasers and Fiber Optics Introduction to lasers and charectristics	Lecture-Method/Black Board	T-1,T-2
49		Working principle of laser- Three Quantum processes	Lecture-Method/Black Board	T-1,T-2
50		Explanation of lasing action , Population inversion and Pumping	Lecture-Method/Black Board	T-2
51		Explanation of Ruby laser AND Nd:YAG laser with energy band diagram	Lecture-Method/Black Board	T-1, T-2
52		Explanation of Argon-ion laser with energy band diagram	Lecture-Method/Black Board	T-1,T-2
53		Explanation of Carbon dioxide laser with energy band diagram	Lecture-Method/Black Board	T-1,T-2
54		Explanation of He-Ne laser with energy band diagram	Lecture-Method/Black Board, Web reference	T-1,T-2,W-4
55		Explanation of Semiconductor laser with energy band diagram-Application	Lecture-Method/Black Board	T-1,T-2
56		Introduction to Optical fiber	Lecture-Method/Black Board	T-2
57		Total internal reflection explanation with diagram	Lecture-Method/Black Board	T-2
58		Derivation for Acceptance angle and cone and Numerical aperture	Lecture-Method/Black Board, Web reference	T-1,T-2, W-5
59		Classification of optical fibres	Lecture-Method/Black Board	T-2
60		Losses associated with optical fibers	Lecture-Method/Black Board	T-1, T-2
61		Optical fiber for communication system	Lecture-Method/Black Board, Web reference	T-2, W-5
62		Applications of optical fibers	Lecture-Method/Black Board	T-1, T-2

TEXT BOOKS:

1. Engineering Physics, B.K. Pandey, S. Chaturvedi - Cengage Learning.
2. Applied Physics Dr. TVS Arun Murthy, Dr Avadhanulu- S chand
3. Semiconductor Physics and Devices- Basic Principle – Donald A, Neamen, Mc Graw Hill, 4thEdition,2021.
4. Essentials of Nanoscience & Nanotechnology by Narasimha Reddy Katta, Typical Creatives NANO DIGEST, 1st Edition, 2021.

REFERENCES:

1. Quantum Physics, H.C. Verma, TBS Publication, 2nd Edition 2012.
2. Introduction to Solid State Physics, Charles Kittel, Wiley Eastern, 2019.
3. MJ. Singh, Semiconductor Optoelectronics: Physics and Technology, Mc Graw-Hill inc. (1995).
4. Energy Materials, Taylor & Francis Group, 1st Edition, 2022.
5. Fundamentals of Physics – Halliday, Resnick and Walker, John Wiley & Sons, 11th Edition, 2018.

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GAP WITHIN THE SYLLABUS-MAPPING TO CO,PO

Boltzmann Distribution law, de-Broglie hypothesis, Schrodinger Time Dependent Wave Equation, Fermi-Dirac Law, Classification of Dielectric materials, , Magnetic moment, Magnetic induction, Magnetic susceptibility, Bhor –Magnetron, Laws of Ray-Optics.

Course Outcomes

After completing this topic, the student will be able to:

1. Explain quantum behavior of matter and classify the solids into conductors, semiconductors and insulators. (Understanding)
2. Make use of the fundamental properties of dielectric, magnetic and energy materials for their application. (Applying)
3. Applying the fiber optic principles in communication systems. (Applying)

Mapping of course outcomes with program outcomes:

High -3 Medium -2 Low-1

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1	3	2	-	-	-	-	-	-	-	-	-	-
2	3	2	-	-	-	-	-	-	-	1	-	1
3	3	2	-	-	-	-	-	-	-	1	-	1

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501510

GAP BEYOND THE SYLLABUS-MAPPING TO PO/PSO

1. Introducing current Scientific and Technological innovations and development.
2. Students are encouraged to take part in Technical Quizzes and various co-curricular activities to ensure their overall development
3. Teaching at least a few portions giving practical demonstration to create interest among the students
4. Motivate Students Participate Various Science Exhibitions to gaining Practical Knowledge
5. Regular industrial visits help students to know the information useful for knowledge up gradation

Mapping to PO/PSO:

High -3 Medium -2 Low-1

PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1	-	-	-	-	2	-	-	-	-	-	-	2
2	-	-	-	-	-	-	-	-	2	-	-	-
3	-	-	-	-	-	-	-	-	-	-	3	-
4	3	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	2	-	-



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WEB REFERENCES :

W-1: https://edisciplinas.usp.br/pluginfile.php/48089/course/section/16461/qsp_chapter10-plank.pdf

W-2: <https://www.physicsvidyapith.com/2022/01/particle-in-one-dimensional-box.html>

W-3: http://ggn.dronacharya.info/ECEDept/Downloads/QuestionBank/VIIsem/oc_C-Unit-3-LED_Structures.pdf

W-4: <https://www.daenotes.com/electronics/microwave-radar/He-Ne-laser>

W-5: <https://www.scribd.com/document/282231579/Block-Diagram-of-Fiber-Optic-Communion-System>

VIDEO REFERENCES:

V-1: [https://www.youtube.com/watch?v=pGerhttps://www.youtube.com/watch?v=Ho7K27B_Uu8_RhxNQJE\(video\)](https://www.youtube.com/watch?v=pGerhttps://www.youtube.com/watch?v=Ho7K27B_Uu8_RhxNQJE(video))

V-2: https://www.youtube.com/watch?v=Ho7K27B_Uu8

V-3: <https://www.youtube.com/watch?v=WR4559RqRzU>

V-4: <https://www.youtube.com/watch?v=rJ-ysch4-NM>

V-5: <https://ul.org/research/electrochemical-safety/getting-started-electrochemical-safety/what-are-lithium-ion>

V-6: <https://www.youtube.com/watch?v=j80jsWFm8Lc>



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LECTURE NOTES

Unit :1 Quantum Physics and Solids:

<https://drive.google.com/file/d/1qSqCr0jAwgU811Toag2BPW-NeH6iKvs-/view?usp=sharing>

Unit :2 Semiconductors and Devices:

<https://drive.google.com/file/d/16HtidqDOyO3yxOcRIIJWZDv95NF99oN-/view?usp=sharing>

Unit :3 Dielectric, Magnetic and Energy Materials:

<https://drive.google.com/file/d/1eX3STCj7eJ5M9j4xHggOF4o-G1fTM8e6/view?usp=sharing>

Unit :4 Nanotechnology:

<https://drive.google.com/file/d/11mCvbrWquTgTgHipt5Bk3qUAG3qkEbQ1/view?usp=sharing>

Unit :5 Lasers and Fibre Optics:

https://drive.google.com/file/d/1MvTUn7xj4_BjqhqK7eCjJnQmG9K56b72/view?usp=sharing

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POWER POINT PRESENTATION

Semi conductors:

https://docs.google.com/presentation/d/1tm8tAbdhYXFS7D-XNm68cG60di_sOCKK/edit?usp=sharing&oid=116158123970542554956&rtpof=true&sd=true

Magnetic properties:

https://docs.google.com/presentation/d/1y6g3KfYErRJ4404pC6F-3YcBONZj_dwu/edit?usp=sharing&oid=116158123970542554956&rtpof=true&sd=true

Optical Fibre:

https://docs.google.com/presentation/d/1RZp4-CI_MmobTe7LpWSoTmi1BQlq0CX4/edit?usp=sharing&oid=116158123970542554956&rtpof=true&sd=true



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PREVIOUS QUESTION PAPERS

Link:

<https://drive.google.com/file/d/1S9EbspvpUxXfiKqNzNed4EA0Eq6heeCm/view?usp=sharing>



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I B. TECH II SEM I – MID Examinations, June-2023

X3

BR22

Set-I

Branch: CSE, CSE (CS) & CSE (DS)
Subject: APPLIED PHYSICS

Marks: 20

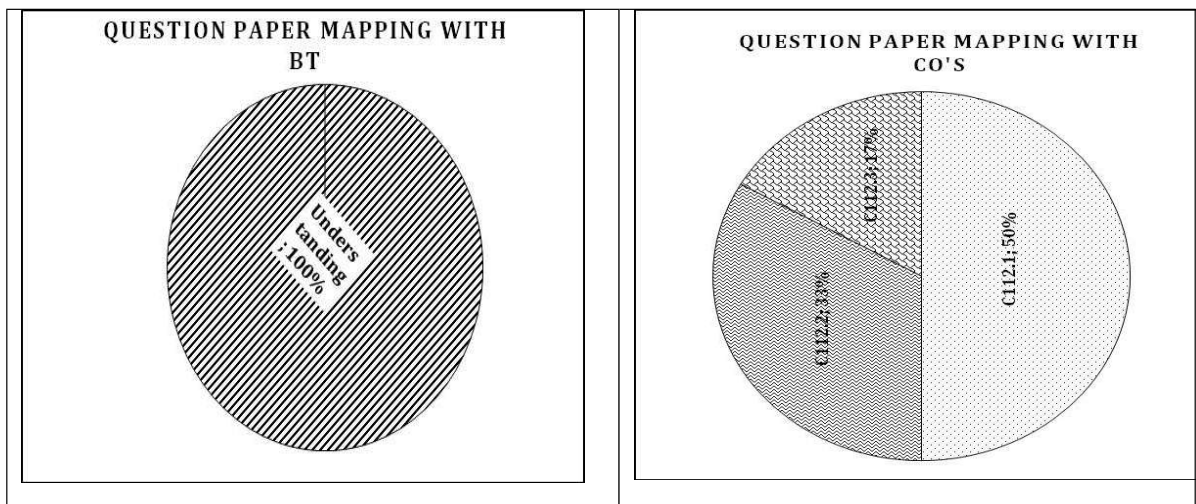
Date: 13-06-2023(FN)
Time: 2 Hours

PART-B

Answer any FOUR Questions. All question Carry Equal Marks

4*5 =20 Marks

1. Derive an expression for Schrodinger's time independent wave equation
(L2) (Understanding)
2. Derive an expression for energy and wave function of an electron confined in 1-D potential box.
(L2) (Understanding)
3. Explain Fermi-Dirac distribution function equation. (L2) (Understanding)
4. Derive an expression for Hall coefficient and Hall voltage? (L2) (Understanding)
5. Write the applications of solar cell. (L2) (Understanding)
6. Write the applications of ferroelectricity. (L2) (Understanding)



Mid-1 Key papers Link:

https://drive.google.com/file/d/10t2hT-v_hx1OODSWvuDPpyvEfu5AWVEU/view?usp=sharing

Mid- Sample Answer Scripts Link

https://drive.google.com/file/d/1aD9IcvenLIEkV23x_q-hW8mJ-lqa5LyI/view?usp=sharing

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I B. TECH II SEM II – MID Examinations , AUGUST-2023

X3

BR22

Set-I

Branch: CSE, CSE (CS) & CSE (DS)

Subject: APPLIED PHYSICS

Marks: 20

Date: 16-08-2022(FN)

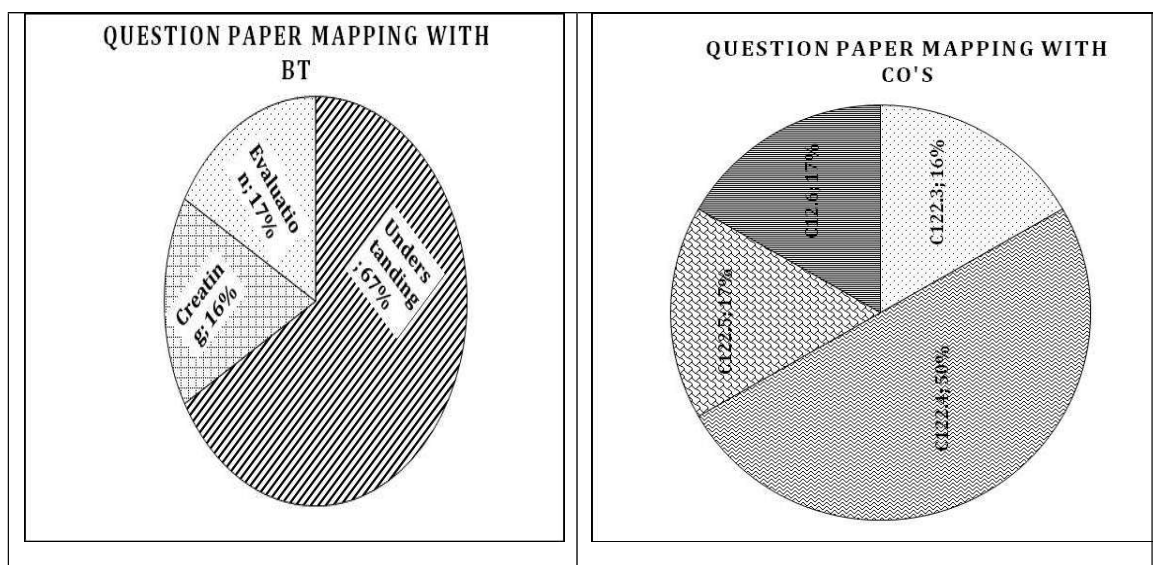
Time: 2 Hours

PART-B

Answer any **FOUR** Questions. All question Carry Equal Marks

4*5 =20 Marks

1. Write a note on super ionic conductors. (Understanding) (L2)
2. Describe ball milling method to synthesis nanomaterials (Understanding) (L2)
3. Write a note on PVD method. (Understanding) (L2)
4. Explain how the nanomaterials are characterized by using TEM (Evaluating) (L5)
5. Discuss construction and working of Argon-ion laser? (Creating) (L6)
6. Derive an expression for acceptance angle and numerical aperture of an optical fiber. (Undersstanding) (L2)



Mid-2 Key papers Link:

<https://drive.google.com/file/d/1M6EKBC2lDivcT9LcMhpRgSjZuKKobc9g/view?usp=sharing>

Mid-2 Sample Answer Scripts Link

https://drive.google.com/file/d/1EZ3w3bTXNxVnF9n_YsTY2Taj_bbZ8Hcy/view?usp=sharing

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ASSIGNMENT QUESTIONS (MID-I)

APPLIED PHYSICS (SEM-II)

1. Derive an expression for Schrodinger's time independent wave equation. (L2) (Understanding)
2. Describe the construction and working of Davisson and Germer's experiment (L2) (Understanding)
3. Explain Fermi-Dirac distribution function equation. (L2) (Understanding)
4. Distinguish between intrinsic and extrinsic semiconductors (L4) (Analyzing)
5. Explain polarization and types of polarization.? (L2) (Understanding)



ASSIGNMENT QUESTIONS (MID-II)

APPLIED PHYSICS (SEM-II)

1. Explain bubble memory devices (L2) (Understanding)
2. Write a note on PVD method. (L2) (Understanding)
3. Describe ball milling method to synthesis nanomaterials. (L2) (Understanding)
4. Explain how the nanomaterials are characterized by using SEM ? (L5) (Evaluating)
5. Write the principle and working of Nd:YAG laser with neat energy level diagram?
(L2) (Understanding)
6. Distinguish between step index and graded index fibers (L4) (Analyzing)
7. Derive an expression for acceptance angle and numerical aperture of an optical fiber.
(L2) (Understanding)

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I- MID AP ASSIGNMENT PROOF

<https://drive.google.com/file/d/18JObQK-ayTsEZbj9ctrfw0HIj3yrDTwW/view?usp=sharing>

II- MID AP ASSIGNMENT PROOF

<https://drive.google.com/file/d/1VoBcMFpYwIsnm3vNTipxcAFxr2dink1m/view?usp=sharing>



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SCHEME OF EVALUATION WITH CO and BTL MAPPING

SCHEME OF EVALUATION-APPLIED PHYSICS(MID-I)(Set-II)		
<i>Instructions:</i>		
a) Any answer by alternate method should be valued and suitably awarded. b) All answers (including extra, stuck off and repeated) should be valued. Answers with maximum marks must be considered.		
Q n No	Description of Answer	Marks
1.	Wave equation and its solution (C122.1) (Understanding)	2
	To get derivation of Schrodinger equation $\nabla^2\psi + \frac{8\pi^2}{h^2}m(E-V)\psi = 0$ (C122.1)(Understanding)	3
2. a.	To get derivation Energy of electron $E_n = \frac{n^2 h^2}{8mL^2}$ (C122.1) (Understanding)	3
b.	To get derivation wave function $= \sqrt{\frac{2}{L}} \sin \frac{n\pi x}{L}$ (C122.1) (Understanding)	2
3.	Fermi-Dirac distribution equation (C122.1) (Understanding)	1
	Fermi-Dirac distribution function explanation with graph (C1122.1) (Understanding)	4
4.	To get Hall coefficient equation $R_H = \frac{1}{pe}$ (C122.2) (Understanding)	3
	To get Hall coefficient equation $V_H = R_H \frac{BI}{t}$ (C122.2) (Understanding)	2
5.	Solar cell Application: 1) Industrial application 2) Social applications 3) Satellites and space vehicles 4)Navigation aids 5) telecommunication systems(C122.2) (Understanding) (Any 5 Application)	5
6.	Ferro electricity applications: 1) Capacitors 2) Vibrators 3) Detectors 4) Ferro electric memories 5) Piezo electric transformers) (C122.3) (Understanding) (Any 5 Application)	5
TOTAL		20

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SCHEME OF EVALUATION WITH CO and BTL MAPPING

SCHEME OF EVALUATION-APPLIED PHYSICS (MID-II)(Set-1)		
<i>Instructions:</i>		
a) Any answer by alternate method should be valued and suitably awarded.		
b) All answers (including extra, stuck off and repeated) should be valued. Answers with maximum marks must be considered.		
Qn No	Description of Answer	Marks
1.	Super ionic conductors explanation (C122.3) (Understanding)	2
	Classification of Super ionic conductors (C122.3) (Understanding)	3
2.	Definition of ball-milling synthesis method (C122.4) (Understanding)	1
	Diagram of ball-milling synthesis method (C122.4) (Understanding)	1
	Explanation of preparation of nonmaterial. (C122.5) (Evaluation)	3
3.	Diagram of PVD method. (C122.4) (Evaluating)	1
	Steps in PVD method and Explanation. (C122.4) (Evaluating)	4
4.	Transmission Electron Microscope diagram. (C122.4) (Evaluating)	1
	Explanation of TEM (C122.4) (Evaluating) (C122.4) (Evaluating)	4
5.	Diagram of Argon-ion laser (C122.5) (creating)	1
	Explanation and working of Argon-ion laser (C122.5) (Creating)	4
6.	Diagram of Acceptance angle (C122.6) (Understanding)	1
	To get equation $\theta_0 = \sin^{-1}(\sqrt{n_1^2 - n_2^2})$ (C122.6) (Understanding)	3
	To get equation $NA = \sin \sqrt{n_1^2 - n_2^2}$ (C122.6) (Understanding)	1
TOTAL		20



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APPIED PHYSICS- TUTORIAL TOPICS

S.No	Topic	Teahind Method/Teaching Aid	No.of Sessions Planned	Reference book
1	Derivation of Planck's distribution law	Lecture-Method/Black Board	1	T-1,T-2
2	Verification of dual nature of electron- Davisson-Germer experiment	Lecture Method, video	1	T-2, R-1
3	Expression for energy of electron in one dimensional box.	Lecture-Method/Black Board Webreference	1	T-1,T-2,
4	Free electron theory of metals Fermi-Dirac distribution function	Lecture-Method/Black Board		T-1,T-2
5	Kronig-Penny model, E-K diagram	Lecture-Method/Black Board		T-1,T-2,R-2
6	Hall effect explanation	Lecture Method	1	T-2,T-3
7	Explanation of formation of p-n junction diode and energe band diagram	Lecture-Method/Black Board	1	T-2, R-3
8	LED explanation with structure	Lecture-Method/Black Board , webreference	1	T-2 ,
9	Solar cell explanation and V-I characteristics	Lecture-Method/Black Board	1	T-2
10	Explanation of LCD and Crystal oscillators	Lecture-Method/Black Board ,	1	T-2,R-3,
11	Magnetosriction and Magneto resistance and Bubble memory devices	Lecture-Method/Black Board ,	1	T-2
12	Explanation of rechargeable ion batteries- LI-ion battery	Lecture-Method/Black Board ,	1	T-2,R-4
13	Explanation of Nd:YAG and Ruby laser with energy band diagram	Lecture-Method/Black Board	1	T-1, T-2
14	Explanation of He-Ne laser with energy band diagram		1	T-1,T-2
15	Derivation for Acceptance angle and cone and Numerical aperture	Lecture-Method/Black Board	1	T-1,T-2
16	Losses associated with optical fibers	Lecture-Method/Black Board	1	T-1, T-2
17	Optical fiber for communication system	Lecture-Method/Black Board	1	T-2
18	Applications of optical fibers	Lecture-Method/Black Board	1	T-1, T-2



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CSE -A:

Result Analysis:

Course Title	APPLIED PHYSICS-I
Course Code	AP202BS
Programme	B. Tech
Year & Semester	I- year, semester-II
Regulation	R-22
Course Faculty	P. Srinivasa Chary Assistant Professor , H&S

Weak Students:

S No	Roll no	I Sem Result	Internal-I Status(35Marks)	Internal-II Status(40 Marks)
1	22X31A519	Failed(5 subjects)	17	22
2	22X31A522	Failed(4 subjects)	15	19
3	22X31A524	Failed(4 subjects)	19	20
4	22X31A527	Failed(4 subjects)	17	24
5	22X31A535	Failed(4 subjects)	16	16
6	22X31A548	Failed(4 subjects)	21	22
7	22X31A564	Failed(3 subjects)	17	21

Advanced learners:

S No	Roll No	I- Sem Percentage	Gate Material
1	22X31A547	94%	Quantum Mechanics, Electronics
2	22X31A502	88.4%	
3	22X31A504	87.7%	
4	22X31A531	85.2%	
5	22X31A5	85.1%	



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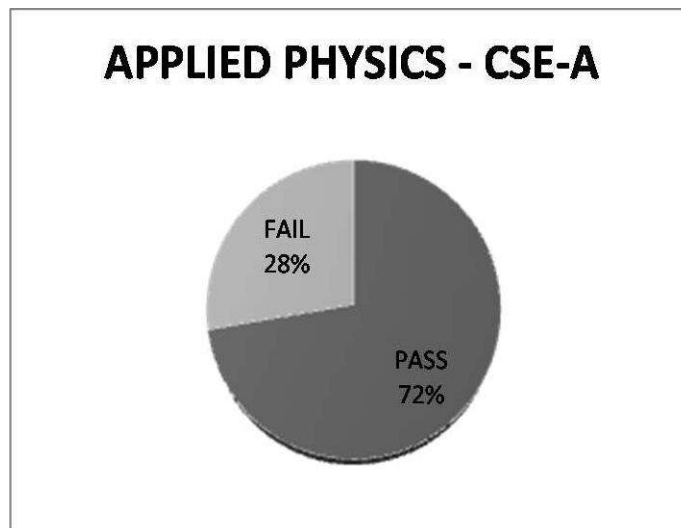
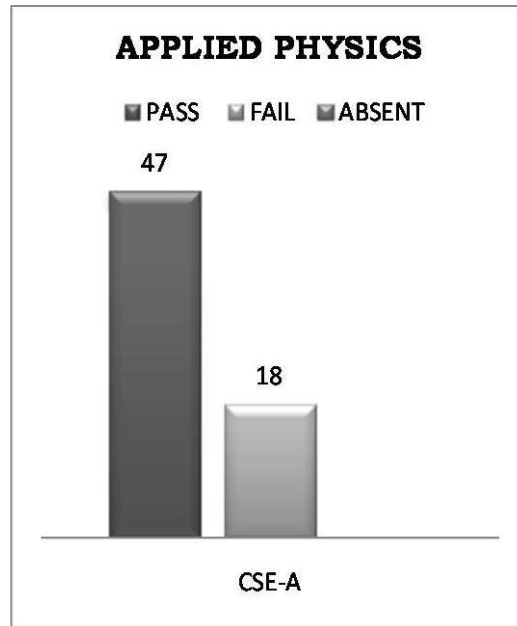
(Approved by AICTE, New Delhi and Affiliated to JNTUH, Hyderabad)

Khalsa Ibrahimpatnam, Sheriguda(V), Ibrahimpatnam(M), Ranga Reddy Dist., Telangana – 501510

RESULT ANALYSIS AT THE END OF SEMISTER

Branch: CSE-A
PHYSICS

Subject: APPLIED



SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

(UGC AUTONOMOUS INSTITUTION)

Accredited by NAAC A+ Grade, Recognized under 2(f) of UGC Act 1956.

(Approved by AICTE, New Delhi and Affiliated to JNTUH, Hyderabad) Khalsa

Ibrahimpatnam, Sheriguda(V), Ibrahimpatnam(M), Ranga Reddy Dist., Telangana – 501510



DEPARTMENT OF HUMANITIES AND SCIENCE

REMEDIAL CLASSES TIME TABLE

DAY/ PERIOD	MON 4.00-5.00	TUE 4.00-5.00	WED 4.00-5.00	THUR 4.00-5.00	FRI 4.00-5.00	SAT 4.00-5.00
CSE-A	ODE&VC	ENG	EDC	AP	ODE&VC	AP
CSE-B	AP	EDC	ODE&VC	ENG	EDC	ENG
CSE-C	ENG	AP	EDC	ODE&VC	AP	ODE&VC

DAY/ PERIOD	MON 4.00-5.00	TUE 4.00-5.00	WED 4.00-5.00	THUR 4.00-5.00	FRI 4.00-5.00	SAT 4.00-5.00
DS	EDC	AP	ODE&VC	ENG	EDC	ODE&VC
CYBER	ENG	EDC	AP	ODE&VC	AP	ENG

DAY/ PERIOD	MON 4.00-5.00	TUE 4.00-5.00	WED 4.00-5.00	THUR 4.00-5.00	FRI 4.00-5.00	SAT 4.00-5.00
AIML-A	ODE&VC	EC	EDC	BEE	EC	ODE&VC
AIML-B	BEE	EDC	ODE&VC	EC	BEE	EDC

DAY/ PERIOD	MON 4.00-5.00	TUE 4.00-5.00	WED 4.00-5.00	THUR 4.00-5.00	FRI 4.00-5.00	SAT 4.00-5.00
AI&DS	BEE	EC	ODE&VC	EDC	BEE	EC
IOT	EC	ODE&VC	EDC	BEE	ODE&VC	EDC

DAY/ PERIOD	MON 4.00-5.00	TUE 4.00-5.00	WED 4.00-5.00	THUR 4.00-5.00	FRI 4.00-5.00	SAT 4.00-5.00
ECE	ODE&VC	BEE	EC	EDC	BEE	EC
CIVIL	ODE&VC	BEE	EC	AM	BEE	EC


Head of the Department
Department of H&S
SRI INDU INSTITUTE OF ENGG & TECH
Sheriguda(V) Ibrahimpatnam (M) R.R. Dist-501510


PRINCIPAL
Sri Indu Institute of Engineering & Techno.
Sheriguda(Vill), Ibrahimpatnam
R.R. Dist. Telangana-501510.

Target set by the faculty / HoD	3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	6.00	3.00
Number of students performed above	34	1	0	6	0	0	18	0	0	10	0	0	47	0	0	19	0	0	62	65
Number of students attempted	45	1	0	9	0	0	23	0	0	13	0	0	54	0	0	24	0	0	62	65
Percentage of students scored more than target	76%	100%		67%			78%			77%			87%			79%			100%	100%

CO Mapping with Exam Questions:

CO - 1	Y			Y															Y	Y
CO - 2						Y			Y							Y			Y	Y
CO - 3													Y						Y	Y
CO - 4																				
CO - 5																				
CO - 6																				

Scored >Target %	76%	100%		67%			78%			77%			87%			79%			100%	100%
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CO Attainment based on Exam Questions:

CO - 1	76%			67%															100%	100%
CO - 2						78%			78%							78%			100%	100%
CO - 3													78%						100%	100%
CO - 4																				
CO - 5																				
CO - 6																				

CO	Subj	obj	Asgn	Overall	Level	Attainment Level	
CO-1	71%	100%	100%	90%	3.00	1	40%
CO-2	78%	100%	100%	93%	3.00	2	50%
CO-3	78%	100%	100%	93%	3.00	3	60%
CO-4							
CO-5							
CO-6							

Attainment (Internal 1 Examination) 3.00

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Humanities & Sciences



Course Outcome Attainment (Internal Examination-2)

Name of the faculty : P. SRINIVAS CHARY

Academic Year:

2022-2023

Branch & Section: CSE-A

Examination:

II Internal

Course Name: APPLIED PHYSICS

Year: I

Semester: II

S.No	HT No.	Q1a	Q1b	Q1c	Q2a	Q2b	Q2c	Q3a	Q3b	Q3c	Q4a	Q4b	Q4c	Q5a	Q5b	Q5c	Q6a	Q6b	Q6c	Obj	A2	viva/ ppt
Max. Marks ==>		5			5			5			5			5			5			10	5	5
1	22X31A501	1						5									2			8	4	5
2	22X31A502				5			5									5			10	5	5
3	22X31A503							5									3			8	4	5
4	22X31A504				5			5						3			5			10	4	5
5	22X31A505							5									5			7	4	5
6	22X31A506							5									2			6	5	5
7	22X31A507				5			5									5			9	4	5
8	22X31A508				1			5						1			5			10	5	5
9	22X31A509							5									3			10	5	5
10	22X31A510	1						5			1			1						10	5	5
11	22X31A511				4			5									3			10	5	5
12	22X31A512							1			1						5			10	4	5
13	22X31A513				2			3						1						9	5	5
14	22X31A514																					5
15	22X31A515							5									1			10	5	5
16	22X31A516							5									2			9	4	5
17	22X31A517	2						5									3			8	4	5
18	22X31A518	2			3			5												10	5	5
19	22X31A519	2																		10	5	5
20	22X31A520							3												9	5	5
21	22X31A521	1						4						2			4			9	5	5
22	22X31A522													1			2			8	4	5
23	22X31A523							3									5			9	5	5
24	22X31A524																3			9	3	5
25	22X31A525													4						7	3	5
26	22X31A526				5			5									5			10	5	5
27	22X31A527				2			5												8	4	5
28	22X31A528				2			5												10	5	5
29	22X31A529				5			5			1						5			9	5	5
30	22X31A530				5			5									5			9	5	5
31	22X31A531				5						4						5			9	5	5
32	22X31A532																					5
33	22X31A533				4			5						4			5			9	5	5
34	22X31A534							5									2			9	5	5
35	22X31A535				1			3												7	5	5
36	22X31A536				3			5			1						5			9	5	5
37	22X31A537																2			10	3	5
38	22X31A538							5									5			9	5	5
39	22X31A539																5			8	4	5
40	22X31A540				4			4						4			5			10	4	5
41	22X31A541	1						5									2			8	5	5
42	22X31A542				1			4			1			2						8	4	5
43	22X31A543				5			5			3			3						8	5	5
44	22X31A544				5			5												10	5	5
45	22X31A545				4			5						5			5			8	5	5
46	22X31A546				2												3			8	3	5
47	22X31A547				5			5												8	5	5
48	22X31A548	2			2						1									9	3	5
49	22X31A549				5			5						5			5			10	5	5
50	22X31A550							5									5			9	5	5
51	22X31A551				4			4			4			4						9	5	5
52	22X31A552				5			5									5			9	4	5
53	22X31A553				5			5									3			8	5	5
54	22X31A554				5			5						3			2			9	5	5
55	22X31A555				4			5			4						5			9	4	5
56	22X31A556							4						2						8	4	5
57	22X31A557	3																		8	4	5
58	22X31A558				5			5									5			10	5	5
59	22X31A559	2			5			5									5			10	5	5
60	22X31A560				2			3						1			2			10	4	5
61	22X31A561							3									2			10	5	5
62	22X31A562				5			5									5			10	5	5
63	22X31A563				3			5									5			10	4	5
64	22X31A564							3									4			10	4	5
65	22X31A565	3						1						2			1			10	4	5

Target set by the faculty / HoD	3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	6.00	3.00	3.00
Number of students performed above the target	2	0	0	25	0	0	51	0	0	4	0	0	9	0	0	34	0	0	63	63	65
Number of students attempted	11	0	0	34	0	0	53	0	0	10	0	0	18	0	0	46	0	0	63	63	65
Percentage of students scored more than target	18%			74%			96%			40%			50%			74%			100%	100%	100%

CO Mapping with Exam Questions:

CO - 1																					
CO - 2																					
CO - 3	Y																		Y	Y	Y
CO - 4						Y													Y	Y	Y
CO - 5									Y			Y							Y	Y	Y
CO - 6				Y											Y				Y	Y	Y

% Students Scored >Target %	18%			74%			96%			40%			50%			74%			100%	100%	100%
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CO Attainment based on Exam Questions:

CO - 1																					
CO - 2																					
CO - 3	18%																		100%	100%	100%
CO - 4						18%													100%	100%	100%
CO - 5									18%			18%							100%	100%	100%
CO - 6				18%											18%				100%	100%	100%

CO	Subj	obj	aasgn	ppt	Overall	Level	Attainment Level	
CO-1							1	40%
CO-2							2	50%
CO-3	18%	100%	100%	100%	80%	3	3	60%
CO-4	18%	100%	100%	100%	80%	3.00		
CO-5	18%	100%	100%	100%	80%	3.00		
CO-6	18%	100%	100%	100%	80%	3.00		

Attainment (Internal Examination-2) 3.00



SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Humanities & Sciences

Course Outcome Attainment (University Examinations)

Name of the faculty	P. SRINIVAS CHARY		Academic Year:	2022-2023	
Branch & Section:	CSE-A		Year / Semester:	I/II	
Course Name:	APPLIED PHYSICS				
S.No	Roll Number	Marks Secured	S.No	Roll Number	Marks Secured
1	22X31A501	22	36	22X31A536	31
2	22X31A502	45	37	22X31A537	5
3	22X31A503	24	38	22X31A538	11
4	22X31A504	52	39	22X31A539	7
5	22X31A505	23	40	22X31A540	35
6	22X31A506	22	41	22X31A541	28
7	22X31A507	33	42	22X31A542	21
8	22X31A508	51	43	22X31A543	22
9	22X31A509	21	44	22X31A544	29
10	22X31A510	25	45	22X31A545	29
11	22X31A511	35	46	22X31A546	12
12	22X31A512	14	47	22X31A547	42
13	22X31A513	13	48	22X31A548	11
14	22X31A514		49	22X31A549	57
15	22X31A515	21	50	22X31A550	38
16	22X31A516	21	51	22X31A551	30
17	22X31A517	13	52	22X31A552	34
18	22X31A518	23	53	22X31A553	38
19	22X31A519	9	54	22X31A554	34
20	22X31A520	2	55	22X31A555	45
21	22X31A521	33	56	22X31A556	23
22	22X31A522	7	57	22X31A557	25
23	22X31A523	22	58	22X31A558	44
24	22X31A524	8	59	22X31A559	38
25	22X31A525	2	60	22X31A560	48
26	22X31A526	35	61	22X31A561	13
27	22X31A527	29	62	22X31A562	33
28	22X31A528	21	63	22X31A563	22
29	22X31A529	42	64	22X31A564	13
30	22X31A530	33	65	22X31A565	9
31	22X31A531	48			
32	22X31A532				
33	22X31A533	51			
34	22X31A534	12			
35	22X31A535	6			
Max Marks	60				
Class Average mark	26			Attainment Level	% students
Number of students performed above the target	29			1	40%
Number of successful students	63			2	50%
Percentage of students scored more than target	46%			3	60%
Attainment level	2				

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Humanities & Sciences

Course Outcome AttainmentName of the faculty: P. SRINIVAS CHARY Academic Year: 2022-2023Branch & Section: CSE-A Examination: I InternalCourse Name: APPLIED PHYSICS Year: ISemester: II

Course Outcomes	1st Internal Exam	2nd Internal Exam	Internal Exam	University Exam	Attainment Level
CO1	3.00		3.00	2.00	2.30
CO2	3.00		3.00	2.00	2.30
CO3	3.00	3.00	3.00	2.00	2.30
CO4		3.00	3.00	2.00	2.30
CO5		3.00	3.00	2.00	2.30
CO6		3.00	3.00	2.00	2.30
Internal & University Attainment:			3.00	2.00	
Weightage			30%	70%	
CO Attainment for the course (Internal, University)			0.90	1.40	
CO Attainment for the course (Direct Method)			2.30		
Overall course attainment level					2.30

SRI INDU INSTITUTE OF ENGINEERING & TECHNOLOGY



Department of Humanities & Sciences

Program Outcome Attainment (from Course)

Name of Faculty: <u>P. SRINIVAS CHARY</u>	Academic Year: <u>2022-2023</u>
Branch & Section: <u>CSE-A</u>	Year: <u>I</u>
Course Name: <u>APPLIED PHYSICS</u>	Semester: <u>II</u>

CO-PO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	-	-	-	-	-	-	-	-	-	-
CO2	3	2	-	-	-	-	-	-	-	-	-	-
CO3	3	2	-	-	-	-	-	-	-	-	-	-
CO4	3	-	-	-	-	-	-	-	-	1	-	1
CO5	3	2	-	-	-	-	-	-	-	1	-	1
CO6	3	2	-	-	-	-	-	-	-	1	-	1
Course	3.00	2.00								1.00		1.00

CO	Course Outcome Attainment
CO1	2.30
CO2	2.30
CO3	2.30
CO4	2.30
CO5	2.30
CO6	2.30
Overall course attainment level	2.30

PO-ATTAINMENT

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO Attainment	2.30	1.53								0.77		0.77

CO contribution to PO - 33%, 67%, 100% (Level 1/2/3)



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Khalsa Ibrahimpatnam, Sheriguda(V), Ibrahimpatnam(M), Ranga Reddy Dist., Telangana – 501510

ATTENDANCE REGISTER

Link:

https://drive.google.com/file/d/1zmnCMw_Nb67tlxndwUsDF0SS2e33fTWc/view?usp=sharing