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

ESTD : 2007

EAMCET CODE: INDI   Approved by AICTE, New Delhi, & Affiliated to JNTUH, Hyderabad.   JNTUH CODE: X3

COURSE FILE

ON

APPLIED PHYSICS

Course Code – AP102BS

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

Prepared by

Mr. R YADAGIRI RAO
Asst. Professor

Head of the Department
Department of H&S
SRI INDU INSTITUTE OF ENGG & TECH
Sheriguda(V) Ibrahimpatnam (M) R.R. Dist-501 51(

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

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Main Road, Sheriguda, Ibrahimpatnam, R.R. Dist. 501 510, Telangana.
Campus Ph: 9640590999, 9347187999.

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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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(Approved by AICTE, New Delhi and Affiliated to JNTUH, Hyderaba
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 assesssocietal, 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 ARTIFICIAL INTELLIGENCE AND DATA SCIENCE
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.	AP102BS	Applied Physics	3	1	0	4
3.	CS103ES	Programming for Problem Solving	3	0	0	3
4.	ME102ES	Engineering Workshop	0	1	3	2.5
5.	EN104HS	English for Skill Enhancement	2	0	0	2
6.	CS106ES	Elements of Computer Science & Engineering	0	0	2	1
7.	AP105BS	Applied Physics Laboratory	0	0	3	1.5
8.	CS107ES	Programming for Problem Solving Laboratory	0	0	2	1
9.	EN107HS	English Language and Communication Skills Laboratory	0	0	2	1
10.	*MC101ES	Environmental Science	3	0	0	0
11.		Induction Programme				
		Total	**14**	**3**	**12**	**20**

I Year II Semester

S. No.	Course Code	Course Title	L	T	P	Credits
1.	MA201BS	Ordinary Differential Equations and Vector Calculus	3	1	0	4
2.	CH203BS	Engineering Chemistry	3	1	0	4
3.	ME201ES	Computer Aided Engineering Graphics	1	0	4	3
4.	EE201ES	Basic Electrical Engineering	2	0	0	2
5.	EC201ES	Electronic Devices and Circuits	2	0	0	2
6.	CH206BS	Engineering Chemistry Laboratory	0	0	2	1
7.	EE202ES	Basic Electrical Engineering Laboratory	0	0	2	1
8.	CS201ES	Python Programming Laboratory	0	1	2	2
9.	CS203ES	IT Workshop	0	0	2	1
		Total	**11**	**3**	**12**	**20**

APPLIED PHYSICS
(Course Code: AP102BS)

B. Tech. I Year I 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 byclassification 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. Bhandhopadhya - 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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Course: Applied Physics (C112)   **Class: I- B TECH- AI&DS**

Course Outcomes

After completing this course the student will be able to:

C112.1: Explain quantum behavior of matter and classify the solids into conductors, semiconductors and insulators. (Understanding)

C112.2: Explain the various semiconductor devices and uses in different engineering applications. (Understanding)

C112.3: Make use of the fundamental properties of dielectric, magnetic and energy materials for their application. (Applying)

C112.4: Analyze the various fabrication techniques to prepare nano materials and nano sized devices. (Analyzing)

C112.5 : Explain the various laser devices and compare the uses in different fields.

(Evaluating)

C112.6: Applying the fiber optic principles in communication systems. (Applying)

CO's Mapping with PO/PSO

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
C112.1	3	2	-	-	-	-	-	-	-	-	-	-
C112.2	3	2	-	-	-	-	-	-	-	-	-	-
C112.3	3	2	-	-	-	-	-	-	-	-	-	-
C112.4	3	-	-	-	-	-	-	-	-	1	-	1
C122.5	3	2	-	-	-	-	-	-	-	1	-	1
C112.6	3	2	-	-	-	-	-	-	-	1	-	1
C112	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.

C112.1: 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)

C112.2: 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)

C112.3: 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(lavel3)
PO2	Student Utilize the dielectric, magnetic materials applications to identify materials. (level2)

C112.4: 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)

C112.5: Explain the various laser devices and compare the uses in different fields. (Evaluating)

	Justification
PO1	Student get knowledge on laser charactristics(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)

C112.6: 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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Lr. No. SIIET/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: SIIET (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 From	Period To	Duration
1.	Commencement of I Semester class work (including Induction programme)	03.11.2022		
2.	1st 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.	2nd 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 From	Period To	Duration
1.	Commencement of II Semester class work	03.04.2023		
2.	1st 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.	2nd 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				

ADDITIONAL CONTROLLER OF EXAMINATIONS
ACE
Sri Indu Institute of Engineering and Technology
(An Autonomous Institution Under JNTUH)
*Copy to All the HOD's/all the Depts. & AO:
Sheriguda (V), Ibrahimpatnam, R.R. Dist-501510.

CONTROLLER OF EXAMINATIONS
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Class: AI &DS   **Semester: I**   **W.E.F-14-11-2022**   **LH:-D-210**

	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	EWS/ELCS LAB			L U N C H	AP	PPS	M&C	PPS(T)/AP(T)
TUE	ENG	ES	M&C		PPS	AP	ES	ENG(T)/M&C(T)
WED	ECSE	PPS	ES		AP	M&C	ENG	AP(T)/PPS(T)
THU	PPS LAB				ECSE	AP	ENG	M&C(T)/ENG(T)
FRI	ENG	PPS	M&C		AP LAB			ECSE(T)
SAT	PPS	AP	M&C		EWS/ELCS LAB			LIB

Course Code	Course Name	Name of the Faculty	Course Code	Course Name	Name of the Faculty
MA101BS	Matrices and Calculus	V.SUJATHA	ME102ES	Engineering Workshop	B.SRINU NAIK/A.MALLESH
AP102BS	Applied Physics	R.YADAGIRI RAO	AP105BS	Applied Physics -Lab	P.SRINIVASA CHARY /M.MANISHA/ R.YADAGIRI RAO /M.JANAIAH
CS103ES	Programming for Problem Solving	G.KALYANI	CS107ES	Programming for Problem Solving Lab	G.KALYANI /U.NARESH
EN104HS	English for Skill Enhancement	G.VENKAT REDDY	EN107HS	English Language and Communication Skills Lab	G.VENKAT REDDY/S.SWAPNA
CS106ES	Elements of Computer Science & Engineering	J.PUJITHA	MC101ES	Environmental Science	O.SUBHASHINI

Class In-Charge   Time Table Coordinator   Head of The Department

Dr. R. YADAGIRI RAO
M.Sc.,B.Ed.,M.Tech(CSE).,Ph D
Head of the Department
Department of H&S
SRI INDU INSTITUTE OF ENGG & TEC
Sheriguda, Ibrahimpatnam (M), R.

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APPLIED PHYSICS: LESSON PLAN:

Lecture hour	UNIT	Topic	TA/TM	Reference book
1		Unit wise Introduction of Applied Physics-Syllabus	Lecture-Method/Black board	T-2
2		**UNIT –I Quantum Mechanics and Solids** Introduction to quantum physics	Lecture-Method/Black board, Web reference, 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	T-1, T-2
5		Photoelectric effect explanation with diagram Variation of Intensity and frequency	Lecture-Method/Black board	T-1, T-2, R-1
6		De-Broglie's hypothesis and equation for wavelength	Lecture-Method/Black board	T-1
7		Verification of dual nature of electron- Davisson- Germer experiment	Lecture-Method/Black board, Video reference,	T-2, R-1, V-2
8	UNIT-I	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, Web reference	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	**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		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, Video reference,	**T-2, R-3, W-3**
25		PIN diode working principle, explanation and V-I characteristics	Lecture-Method/Black board	**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, supersonic 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 fule cell and applications	Lecture-Method/Black board,	T-2, R-4
40		**UNIT-IV: Nanotechnology:** Introduction to Nanotechnology – quantum confinement	Lecture-Method/Black board	T-2, R-5
41		Surface to volume ratio-Explanation	Lecture-Method/Black board	T-2, R-5
42	**UNIT-IV**	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		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- Lasers and Fiber Optics:** Introduction to lasers and characteristics	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	**UNIT-V**	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	**T-1, T-2**
59		Classification of optical fibers	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 Learing.

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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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 upgradation

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-Communiction-System

VIDEO REFERENCES:

v-1: 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/16HtidqDQyO3yxQcRIlJWZDv95NF99oN-/view?usp=sharing

Unit :3 Dielectric, Magnetic and Energy Materials:

https://drive.google.com/file/d/1eX3STCj7eJ5M9j4xHggQF4o-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

POWER POINT PRESENTATION

Semi conductors:

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

Magnetic properties:

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

Optical Fibre:

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

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PREVIOUS QUESTION PAPERS

Link:
https://drive.google.com/file/d/1tw74vgRZt0a17vR925UaMkVFurJCMG9A/view?usp=sharing

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X3

BR22

I B. TECH   I – MID Examinations, Dec-2022/ Jan-2023

Set-II

Branch: CIVIL, ECE, CSE(AL&ML), CSE(IOT), AI&DS   Date: 30-12-2022(FN)
Subject: APPLIED PHYSICS   Marks: 20   Time: 2 Hours

Answer any FOUR Questions. All question Carry Equal Marks   4*5 =20 Marks

1. Derive Eigen values and Eigen functions for a particle in one dimensional box.
(L2) (Understanding)

2.
a. Classify the conductors, semiconductros and insulators on the basis of band theory of solids.
(L4) (Analyze)

b. Explain Fermi-Dirac distribution function equation.
(L5) (Evaluation)

3. Explain the construction and working of light emitting diode.   (L2) (Understanding)

4. Derive an expression for Hall coefficient and Hall mobility?   (L2) (Understanding)

5. Explain formation of depletion region in p-n junction diode and write its applications.
(L5) (Evaluation)

6. Analyze briefly ferroelectrics and piezoelectrics?   (L4) (Analyze)

QUESTION PAPER MAPPING WITH BT — Evaluation :29%, Understanding: 43%, Analyzing: 28%

QUESTION PAPER MAPPING WITH CO'S — C112.3:17%, C112.1;33%, C112.2;50%
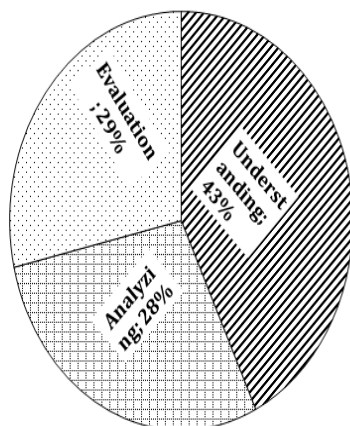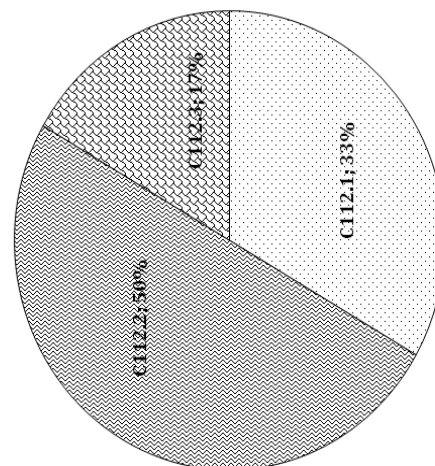
Mid-1 Sample Answer Scripts Link :
https://drive.google.com/file/d/1ZUNDuo4QL3DPVuuTEoheq4v6oqo10dgy/view?usp=sharing

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X3

BR22

I B. TECH   II – MID Examinations, March-2023

Set-I

Branch: CIVIL, ECE, CSE(AL&ML), CSE(IOT), AI&DS   **Date: 04-03-2022(FN)**
Subject: APPLIED PHYSICS   **Marks: 20**   **Time: 2 Hours**

PART-B

Answer any **FOUR** Questions. All question Carry Equal Marks   4*5 =20 Marks

1. Describe liquid crystal displays?   (L2) (Understanding)
2. Discuss sol-gel method to preparation of nanomaterials?   (L6) (Creating)
3. Explain how the nanomaterials are characterized by using TEM?   (L5) (Evaluation)
4. Explain the construction of He-Ne laser with neat energy level diagram.

          (L5) (Evaluation)
5. Write the principle and working of Nd:YAG laser with neat energy level diagram?
          (L2 (Understanding)
6. Derive the relation for acceptance angle and numerical aperture of an optical fiber.
          (L2)(Understanding)

QUESTION PAPER MAPPING WITH BT — Evaluation :33%, Understanding: 50%, Creating :17%

QUESTION PAPER MAPPING WITH CO'S — C112.6; 20%, C112.3; 20%, C112.5; 20%, C112.4; 40%

ASSIGNMENT QUESTIONS (MID-I)

APPLIED PHYSICS (SEM-I)

1. Describe the Davisson and Germer's experiment and what it confirms.

   (Understanding) (L2)

2. Show that the energies of a particle in one dimensional box are quantized.
   (Understanding) (L2)
3. **a)** Explain Fermi-Dirac distribution function. (L5) (Evaluation)

   b) Classify the conductors, semiconductors and insulators on the basis of band theory of solids. (L4) (Analyzing)

4. What is Hall effect? Derive an expression for hall coefficient of a semiconductor.

   (Understanding) (L2)

5. Describe principle, construction and working of solar cell. (Understanding) (L2)

6. Explain polarization and types of polarization.? (Understanding) (L2)

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ASSIGNMENT QUESTIONS (MID-II)

APPLIED PHYSICS (SEM-I)

1. Explain briefly liqui crystal displays(LCD).   (Understanding) (L2)

2. Explain the principle and working of Nd:YAG laser with neat energy level diagram?

    (Evaluation) (L5)

3. Derive the relation for acceptance angle and numerical aperture of an optical fiber.

    (Understanding) (L2)

4. Distinguish between monomode and multimode fiber   Analyzing (L4)

5. Eplain sol-gel method .   (Understanding) (L2)

6. Explain how the nanomaterials are characterized by using TEM ? (Evaluation)(L5)

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I-MID & II-MID AP ASSIGNMENT PROOFS

Mid1 Assignment Link:

https://drive.google.com/file/d/1Txq-HlzDJhXxsOiFnVKQevqKrugUiMhZ/view?usp=sharing

Mid2 Assignment Link:

https://drive.google.com/file/d/1Kw0xobt_rkdEz6a60zWPIfgGeqprq-Qd/view?usp=sharing

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SCHEME OF EVALUATION WITH CO and BTL MAPPING

	SCHEME OF EVALUATION-APPLIED PHYSIS(MID-I)(Set-II)	
	Instructions:	
	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.	To get derivation Energy of electron $E_n = \frac{n^2 h^2}{8mL^2}$ (C112.1) (Understanding)	3
	To get derivation wave function $\psi_n = \sqrt{\frac{2}{L}} \sin \frac{n\pi x}{L}$ (C112.1) (Understanding)	2
2. a.	Classification of solids into the conductors, semiconductors and insulators on the basis of band theory of solids.	3
b.	Fermi-Dirac distribution function explanation (C112.1) (Analyze)	2
3.	Definition of LED (C112.2) (Understanding)	1
	Diagram and Explanation of Construction of LED ((C112.2) (Understanding)	2
	Explanation of Working of LED (C112.2) (Understanding)	2
	Diagram of formation of energy gap (C112.2) (Understanding)	1
4.	To get Hall coefficient equation $R_H = \frac{1}{pe}$ (C112.2) (Understanding)	3
	To get Hall mobility $\mu_{H} = \sigma \, R_H$ (C112.2) (Understanding)	2
5.	Diagram of formation of energy gap (C112.2) (Evaluation)	1
	Explanation for the formation of energy gap of p-n junction diode. (C112.2) (Evaluation)	2
	P-n diode application :a) As rectifier, b) as gun diode, c) as tunnel diode D) photodiode	2
6	Definition and Explanation of ferroelectric materials (C112.3) (Analyze)	3
	Definition and Explanation of piezoelectric materials (C112.3) (Analyze)	2
	TOTAL	**20**

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SCHEME OF EVALUATION-APPLIED PHYSICS (MID-II)(Set-1)

Instructions:

    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.	Definition of LCD (C112.3) (Understanding)	1
	Diagram and Explanation of Construction of LCD (C112.3) (Understanding)	2
	Explanation of Working of LCD (C112.3) (Understanding)	2
2.	Definition of sol-gel synthesis method (C112.4) (Creating)	1
	Diagram of sol-gel synthesis method (C112.4) (Creating)	1
	Explanation of preparation of nonmaterials. (C112.5) (Evaluation)	3
3.	Transmission Electron Microscope diagram. (C112.5) (Evaluation)	1
	Explanation of TEM	4
4.	Diagram of He-Ne laser (C112.5) (Evaluation)	1
	Explanation and working of He-Ne laser (C112.5) (Evaluation)	4
5.	Diagram of Nd:YAG laser (C112.5) (Understanding)	1
	Explanation and working of Nd:YAG laser (C112.5) (Understanding)	4
6.	Diagram of Acceptance angle (C112.6) (Understanding)	1
	To get equation $\theta_0 = sin^{-1}(\sqrt{n_1^2 - n_2^2}\ )$ (C112.6) (Understanding)	3
	To get equation NA $= sin\sqrt{n_1^2 - n_2^2}$ (C112.6) (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/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, V-2**
3	Expression for energy of electron in one dimensional box.	Lecture-Method/Black board Web reference	1	**T-1, T-2, W-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 **Video**	1	**T-2, R-3**
8	LED explanation **with** structure	Lecture-Method/Black board, webreference	1	**T-2 , W-7**
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, W-3**
11	Magnetostriction and Magneto resistance and Bubble memory devices	Lecture-Method/Black board,	1	**T-2, V-4**
12	Explanation of rechargeable ion batteries- LI-ion battery	Lecture-Method/Black board	**1**	**T-2, R-4, V-5**
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, W-5**
18	Applications of optical fibers	Lecture-Method/Black board	**1**	**T-1, T-2**

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AI&DS
Result Analysis:

Course Title	APPLIED PHYSICS-I
Course Code	AP102BS
Programme	B. Tech
Year & Semester	Ist year Ist semester
Regulation	R22
Course Faculty	R Yadagiri Rao Assistant Professor, H&S

Weak Students:

S No	Roll no	Intermediate Marks	Internal-I Status (35)	Internal-II Status (35)
1	22X31A7207	64%	19	22
2	22X31A7212	67.5%	19	25
3	22X31A7214	72.5%	18	21
4	22X31A7220	70%	19	24
5	22X31A7229	69%	17	23
6	22X31A7230	63%	19	18
7	22X31A7234	66%	20	20
8	22X31A7256	72%	21	18

Advanced learners:

S No	Roll No	Intermediate Marks	Gate Material
1	22X31A7217	96%	Quantum Mechanics, Electronics
2	22X31A7218	94.1%	
3	22X31A7219	97.5%	
4	22X31A7233	97.5%	
5	22X31A7242	95.2%	

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RESULT ANALYSIS ATTHE END OF SEMISTER

Branch: AI&DS Subject: APPLIED PHYSICS
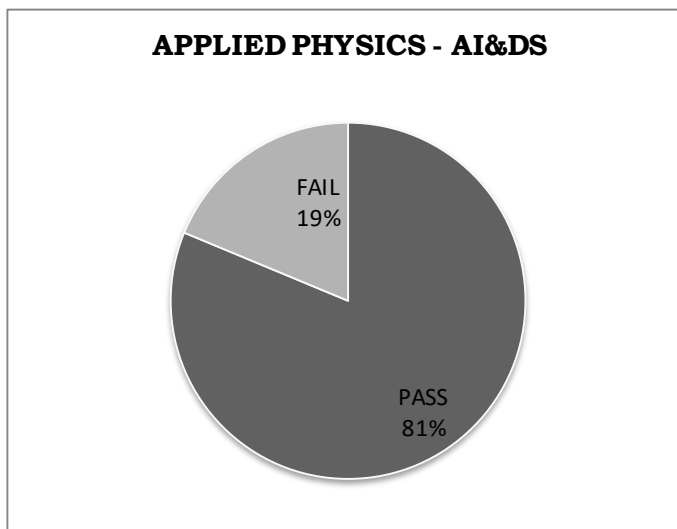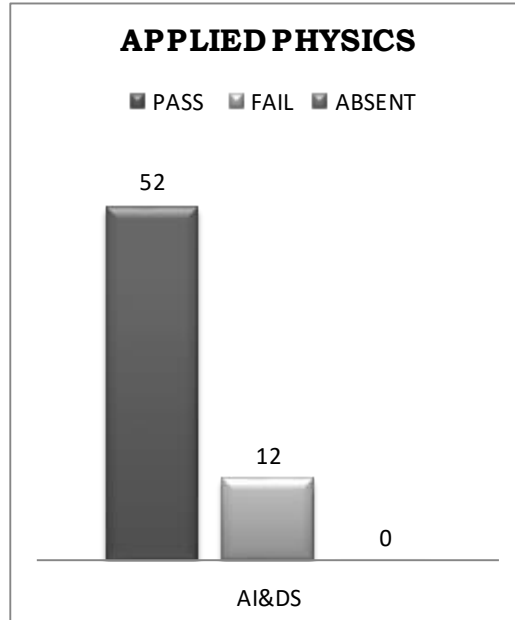
APPLIED PHYSICS

■ PASS   ■ FAIL   ■ ABSENT

52

12

0

AI&DS

APPLIED PHYSICS - AI&DS

FAIL
19%

PASS
81%

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	M&C	PPS	BEE	EG	EC	M&C
CSE-B	BEE	M&C	EG	PPS	EC	BEE
CSE-C	EC	EG	BEE	M&C	PPS	EC

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	M&C	EC	BEE	PPS	EG	EC
CYBER	PPS	M&C	EC	EG	BEE	M&C

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	AP	PPS	M&C	ENG	AP	M&C
AIML-B	M&C	EG	PPS	AP	M&C	EG

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	M&C	ENG	AP	PPS	AP	PPS
IOT	PPS	AP	M&C	EG	M&C	EG

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	AP	ENG	M&C	PPS	AP	PPS
CIVIL	EG	AP	M&C	PPS	M&C	EG

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

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

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Humanities & Sciences

Course Outcome Attainment (Internal Examination-1)

Name of the faculty: R YADAGIRI RAO Academic Year: 2022-2023

Branch & Section: AI&DS Examination: I Internal

Course Name: APPLIED PHYSICS Year: I Semester: I

S.No	HT No.	Q1a	Q1b	Q1c	Q2a	Q2b	Q2c	Q3a	Q3b	Q3c	Q4a	Q4b	Q4c	Q5a	Q5b	Q5c	Q6a	Q6b	Q6c	Obj1	A1
Max. Marks ==>		5			3	2		5			5			5			5			10	5
1	22X31A7201	4			2	2					1									8	5
2	22X31A7202	4			2	2					2									7	5
3	22X31A7203	2			3	2					2			1						9	5
4	22X31A7204	4									2			2						7	5
5	22X31A7205	4			3	2					1						2			6	5
6	22X31A7206	2			2						2			2						6	5
7	22X31A7207				2	2					3									7	5
8	22X31A7208	4						4						3						5	5
9	22X31A7209	5			1						2			2						4	5
10	22X31A7210				3						3									8	5
11	22X31A7211	5			3	2		1						2						8	5
12	22X31A7212	3						3						2						6	5
13	22X31A7213	3			2	2					3			1						5	5
14	22X31A7214	1			2	2					1						1			6	5
15	22X31A7215	4			3	2					1			2						4	5
16	22X31A7216				1						2									8	5
17	22X31A7217	4			3	2					1			3						5	5
18	22X31A7218	1			3	2								2			2			7	5
19	22X31A7219	4			3	2														5	5
20	22X31A7220	3						2						2						7	5
21	22X31A7221	2			2			3			2									5	5
22	22X31A7222				3			3			1			2						8	5
23	22X31A7223	3			3	1					2			3						5	5
24	22X31A7224	3						2			1			2						5	5
25	22X31A7225	3			2	2														8	5
26	22X31A7226	4			3	2		3						5						8	5
27	22X31A7227	4			3	2					2			2						6	5
28	22X31A7228	4									2									6	5
29	22X31A7229							1			3						2			6	5
30	22X31A7230							1			2			1			2			8	5
31	22X31A7231	1				1		3			3			2						5	5
32	22X31A7232	1						1						1			2			6	5
33	22X31A7233	4			3	2								2			5			6	5
34	22X31A7234	3			3						2			1						6	5
35	22X31A7235	4			3	2		5						3						8	5
36	22X31A7236	4			3			2			3									6	5
37	22X31A7237	4			3						1									8	5
38	22X31A7238	4									3									6	5
39	22X31A7239	4			3						3									8	5
40	22X31A7240	3			3									2						10	5
41	22X31A7241	3			3	2		5			3									9	5
42	22X31A7242	4			3	2		4						4						9	5
43	22X31A7243	1				2					3			3						7	5
44	22X31A7244										3			2						6	5
45	22X31A7245	4			3	2					3			3						6	5
46	22X31A7246							3			3									7	5
47	22X31A7247										3			3						7	5
48	22X31A7248	3			3	2					3			2						7	5
49	22X31A7249	5			3	1					1			4						8	5
50	22X31A7250	4			3	2					2			3						5	5
51	22X31A7251							3			3			3			4			6	5
52	22X31A7252	2									2			3						6	5
53	22X31A7253	5			3	2					3			2						6	5
54	22X31A7254				3	1					2			2						6	5
55	22X31A7255	5			3	2					3									6	5
56	22X31A7256							2			2			2			1			6	5
57	22X31A7257	4			3						1			1						6	5
58	22X31A7258				3			2			3			2			1			7	5
59	22X31A7259	5			3	2					3			3						8	5
60	22X31A7260	5			3	2		1			3									7	5
61	22X31A7261	4			2	2		2						2						6	5
62	22X31A7262				3	2								3			2			6	5
63	22X31A7263	1						2			2			1			2			7	5
64	22X31A7264	2			2						2						1			5	5

Target set by the faculty / HoD	3.00	0.00	0.00	1.80	1.20	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	38	0	0	42	27	0	11	0	0	21	0	0	15	0	0	2	0	0	51	64
Number of students attempted	49	0	0	44	31	0	24	0	0	48	0	0	43	0	0	13	0	0	63	64
Percentage of students scored more than target	78%			95%	87%		46%			44%			35%			15%			81%	100%

CO Mapping with Exam Questions:

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

Scored >Target %	78%			95%	87%		46%			44%			35%			15%			81%	100%

CO Attainment based on Exam Questions:

CO - 1	78%			95%	95%														81%	100%
CO - 2							46%			46%						46%			81%	100%
CO - 3													46%						81%	100%
CO - 4																				
CO - 5																				
CO - 6																				

CO	Subj	obj		Asgn	Overall		Level										Attainment Level	
CO-1	89%	81%		100%	90%		3.00										1	40%
CO-2	46%	81%		100%	76%		3.00										2	50%
CO-3	46%	81%		100%	76%		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 : R YADAGIRI RAO	Academic Year:	2022-2023
Branch & Section: AI&DS	Examination:	II Internal
Course Name: APPLIED PHYSICS	Year: I	Semester: I

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	22X31A7201	5						5			2						5			10	5	5
2	22X31A7202	1			4			4									4			10	5	5
3	22X31A7203	2			4			5									4			10	5	5
4	22X31A7204							3						3			4			10	5	5
5	22X31A7205				4						3			5			5			10	5	5
6	22X31A7206	5												2			2			10	5	5
7	22X31A7207	3			2									2						10	5	5
8	22X31A7208	2						2			4			4						9	5	5
9	22X31A7209	5			5									2						9	5	5
10	22X31A7210	5			1									3						9	5	5
11	22X31A7211	5			5			5						4						10	5	5
12	22X31A7212	4												1			1			10	5	5
13	22X31A7213	5			5			5						5						10	5	5
14	22X31A7214	5						1												10	5	5
15	22X31A7215	5						5									5			10	5	5
16	22X31A7216	3						2												8	5	5
17	22X31A7217	5			5									3			5			9	5	5
18	22X31A7218	5			2									3			2			7	5	5
19	22X31A7219	4						1						3			5			7	5	5
20	22X31A7220	5			4									1						9	5	5
21	22X31A7221	5						5						4			1			6	5	5
22	22X31A7222	5												3			1			8	5	5
23	22X31A7223				4			2						3			4			6	5	5
24	22X31A7224	4						3			2			2						6	5	5
25	22X31A7225				5									4			4			8	5	5
26	22X31A7226	5			5			5									5			9	5	5
27	22X31A7227	5			5			5									5			10	5	5
28	22X31A7228	4						3						3			3			6	5	5
29	22X31A7229	5															3			10	5	5
30	22X31A7230	3						2												8	5	5
31	22X31A7231	4			5									3						6	5	5
32	22X31A7232	5			1															6	5	5
33	22X31A7233	5						5						5			5			10	5	5
34	22X31A7234				2			2						5						6	5	5
35	22X31A7235	5			5			5									4			9	5	5
36	22X31A7236	5									3			3			4			6	5	5
37	22X31A7237	5						2						3			2			5	5	5
38	22X31A7238	4			2						2			3						6	5	5
39	22X31A7239	3						1			1						2			8	5	5
40	22X31A7240																				5	5
41	22X31A7241	5			3			3									4			9	5	5
42	22X31A7242	5			5									4			5			10	5	5
43	22X31A7243	2			5			3						4						8	5	5
44	22X31A7244	5						5						1			2			7	5	5
45	22X31A7245	5			5									4			5			10	5	5
46	22X31A7246	5												3			3			9	5	5
47	22X31A7247													3			1			10	5	5
48	22X31A7248	5			3									3			4			10	5	5
49	22X31A7249	5						5						4			5			10	5	5
50	22X31A7250	5			4									3			3			9	5	5
51	22X31A7251	5						4						3						10	5	5
52	22X31A7252	4												3			4			6	5	5
53	22X31A7253				5			5						4			4			9	5	5
54	22X31A7254	5						1						4			4			7	5	5
55	22X31A7255	4						5						5			4			10	5	5
56	22X31A7256	5			4			5									2			10	5	5
57	22X31A7257	5			5									5			5			10	5	5
58	22X31A7258	5			3			4						1						10	5	5
59	22X31A7259	5			5			5			5									10	5	5
60	22X31A7260	5						5						4			5			10	5	5
61	22X31A7261	5			4			5						4						10	5	5
62	22X31A7262	5			5									5			5			9	5	5
63	22X31A7263	1									1			2			1			8	5	5
64	22X31A7264	5						1						1			1			7	5	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	51	0	0	27	0	0	26	0	0	4	0	0	37	0	0	31	0	0	62	64	64
Number of students attempted	56	0	0	33	0	0	37	0	0	9	0	0	47	0	0	43	0	0	63	64	64
Percentage of students scored more than target	91%			82%			70%			44%			79%			72%			98%	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 %	91%			82%			70%			44%			79%			72%			98%	100%	100%

CO Attainment based on Exam Questions:

CO - 1																					
CO - 2																					
CO - 3	91%																		98%	100%	100%
CO - 4					91%														98%	100%	100%
CO - 5										91%			91%						98%	100%	100%
CO - 6				91%												91%			98%	100%	100%

CO	Subj	obj	aasgn	ppt	Overall	Level					Attainment Level	
CO-1											1	40%
CO-2											2	50%
CO-3	91%	98%	100%	100%	97%	3					3	60%
CO-4	91%	98%	100%	100%	97%	3.00						
CO-5	91%	98%	100%	100%	97%	3.00						
CO-6	91%	98%	100%	100%	97%	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	R YADAGIRI RAO		Academic Year:		2022-2023
Branch & Section:	AI&DS		Year / Semester:		I / I
Course Name:	APPLIED PHYSICS				

S.No	Roll Number	Marks Secured		S.No	Roll Number	Marks Secured
1	22X31A7201	32		36	22X31A7236	37
2	22X31A7202	23		37	22X31A7237	36
3	22X31A7203	31		38	22X31A7238	23
4	22X31A7204	21		39	22X31A7239	11
5	22X31A7205	30		40	22X31A7240	8
6	22X31A7206	22		41	22X31A7241	29
7	22X31A7207	12		42	22X31A7242	46
8	22X31A7208	44		43	22X31A7243	26
9	22X31A7209	33		44	22X31A7244	36
10	22X31A7210	28		45	22X31A7245	31
11	22X31A7211	39		46	22X31A7246	9
12	22X31A7212	11		47	22X31A7247	--
13	22X31A7213	41		48	22X31A7248	24
14	22X31A7214	5		49	22X31A7249	43
15	22X31A7215	45		50	22X31A7250	38
16	22X31A7216	5		51	22X31A7251	42
17	22X31A7217	47		52	22X31A7252	22
18	22X31A7218	24		53	22X31A7253	32
19	22X31A7219	22		54	22X31A7254	17
20	22X31A7220	23		55	22X31A7255	29
21	22X31A7221	35		56	22X31A7256	34
22	22X31A7222	49		57	22X31A7257	46
23	22X31A7223	36		58	22X31A7258	22
24	22X31A7224	33		59	22X31A7259	38
25	22X31A7225	24		60	22X31A7260	28
26	22X31A7226	50		61	22X31A7261	33
27	22X31A7227	28		62	22X31A7262	37
28	22X31A7228	24		63	22X31A7263	2
29	22X31A7229	21		64	22X31A7264	3
30	22X31A7230	10				
31	22X31A7231	21				
32	22X31A7232	28				
33	22X31A7233	28				
34	22X31A7234	21				
35	22X31A7235	30				

Max Marks					

				Attainment Level	% students
Class Average mark	28				
Number of students performed above the target	36			1	40%
Number of successful students	64			2	50%
Percentage of students scored more than target	56%			3	60%

Attainment level	3

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Humanities & Sciences
Course Outcome Attainment

Name of the faculty	R YADAGIRI RAO		Academic Year:	2022-2023
Branch & Section:	AI&DS		Examination:	I Internal
Course Name:	APPLIED PHYSICS		Year:	I
			Semester:	I

Course Outcomes	1st Internal Exam	2nd Internal Exam	Internal Exam	University Exam	Attainment Level
CO1	3.00		3.00	3.00	3.00
CO2	3.00		3.00	3.00	3.00
CO3	3.00	3.00	3.00	3.00	3.00
CO4		3.00	3.00	3.00	3.00
CO5		3.00	3.00	3.00	3.00
CO6		3.00	3.00	3.00	3.00
Internal & University Attainment:			3.00	3.00	
Weightage			30%	70%	
CO Attainment for the course (Internal, University)			0.90	2.10	
CO Attainment for the course (Direct Method)			3.00		

Overall course attainment level   **3.00**

SRI INDU INSTITUTE OF ENGINEERING & TECHNOLOGY

Department of Humanities & Sciences
Program Outcome Attainment (from Course)

Name of Faculty: R YADAGIRI RAO Academic Year: 2022-2023
Branch & Section: AI&DS Year: I
Course Name: APPLIED PHYSICS Semester: I

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	3.00
CO2	3.00
CO3	3.00
CO4	3.00
CO5	3.00
CO6	3.00
Overall course attainment level	3.00

PO-ATTAINMENT

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO Attainment	3.00	2.00								1.00		1.00

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/1S-Uh2_2JVKe9cATM0MTCZYDEqPSnIQfi/view?usp=sharing