Name of the Programme: B.Sc. (Hons.) Physics [NEP]

Programme Learning Outcomes (POs)

S. No	Programme Learning Outcome (as in LOCF)	Details mentioned in LOCF
PO1	In-depth disciplinary knowledge	The student will acquire comprehensive knowledge and understanding of the fundamental concepts, theoretical principles and processes in the main and allied branches of physics. The core papers will provide in-depth understanding of the subject. A wide choice of elective courses offered to the student will provide specialized understanding rooted in the core and interdisciplinary areas.
PO2	Hands-on/ Laboratory Skills	Comprehensive hands-on/ laboratory exercises will impart analytical, computational and instrumentation skills. The students will be able to demonstrate mature skills for the collation, evaluation, analysis and presentation of information, ideas, concepts as well as quantitative and/or qualitative data.
PO3	Research skills	The course provides an opportunity to students to hone their research and innovation skills through internship/apprenticeship/project/community outreach /dissertation/ Academic Project/Entrepreneurship. It will enable the students to demonstrate mature skills in literature survey, information management skills, data analysis and research ethics.
PO4	Role of Physics	The students will develop awareness and appreciation for the significant role played by physics in current societal and global issues. They will be able to address and contribute to such issues through the skills and knowledge acquired during the programme. They will be able identify/mobilize appropriate resources required for a project, and managing a project through to completion, while observing responsible and ethical scientific conduct, safety and laboratory hygiene regulations and practices
PO5	Communication and IT Skills	Various DSCs, DSEs, SECs, GEs and AECs have been designed to enhance student's ability to write methodical, logical and precise reports. The courses will, in addition, guide the student to communicate effectively through oral/poster presentations, writing laboratory/ project reports and dissertations. Several IT based papers in DSCs, DSEs, SECs and AECs will enable students to develop expertise in general and subject specific computational skills.

Course Code	Course Name	PO1	PO2	PO3	PO4	PO5
B. Sc. (Hons) Physics) I year [NEP]						
2222011101	Mathematical Physics I	Yes	Yes	No	No	No
2222011102	Mechanics	Yes	Yes	No	No	No
2222011103	Waves and Oscillations	Yes	Yes	No	No	No
2222011201	Mathematical Physics II	Yes	Yes	No	No	No
2222011202	Electricity and Magnetism	Yes	Yes	No	No	No
2222011203	Electrical Circuit Analysis	Yes	YEs	No	No	No

Course Code	Course Name	PO1	PO2	PO3	PO4	PO5
B. Sc. (Hons) Physics) II year [NEP]						
2222011301	Mathematical Physics III	Yes	Yes	No	No	No
2222011302	Thermal Physics	Yes	Yes	No	No	No
2222011303	Light and Matter	Yes	Yes	No	No	No
2222011401	Analog Electronics	Yes	Yes	No	No	No
2222011402	Modern Physics	Yes	Yes	No	No	No
2222011403	Solid State Physics	Yes	Yes	No	No	No

(TIC, Physics)

Mapping of Course with Program Outcomes (PLOs)

#	Discipline Specific Core Course Name	PLO1: Ability to apply knowledge of mathematics & science in solving instrumentation related problems.	PLO2. Ability to design and conduct instrumentation experiments, as well as to analyze and interpret data.	PLO3. Ability to design and manage instrumentationsystems or processes that conforms to a given specification within ethical and economic constraints.	PLO4Ability to identify, formulate, solve and analyze the problems in various disciplines of instrumentation.	PLO5. Ability to function as a member of a multidisciplinary team with sense of ethics, integrity and	PLO6. Ability to communicate effectively in term of oral and written communication skills	PLO7. Recognize the need for, and be able to engage in lifelong learning.	PLO8. Ability to use techniques, skills and modern technological/scientific/engineering software/tools for professional practices
1	Analog Electronics	√		√					
2	Analog Electronics Lab		√		√	√	√		√
3	Basic Circuit theory		√	√		√	√		
4	Basic Circuit theory Lab				√	√			√
5	Testing and measurement	√		√					
6	Testing and measurement Lab				√	√			√
7	Fundamentals of Digital Circuits	√		√					
8	Fundamentals of Digital Circuits Lab				√	√			√
9	Sensors and actuator	√	√				√		
10	Sensors and actuator lab		√		√		√		√
11	Electronic Instrumentation		√	√	√				
12	Electronic Instrumentation Lab		√				√		√
13	Analytical Instrumentation- I	√			√	√	√		
14	Analytical Instrumentation -I Lab	√		√	√		√		√
15	Operational Amplifiers and Applications		√	√	√			√	
16	Operational Amplifiers and Applications Lab		√		√	√	√		√
17	Mathematical Techniques for Instrumentation		√	√		√	√		
18	Mathematical Techniques for Instrumentation Lab				√	√			√
19	Biomedical Instrumentation		√		√	√	√		√
20	Biomedical Instrumentation Lab		√	√		√	√		
21	Machine Learning	√	√					√	
22	Machine Learning Lab				√	√		√	
23	Optical Instrumentation	√		√					
24	Optical Instrumentation Lab				√	√			
25	Analytical Instrumentation- II	√	√					√	
26	Analytical Instrumentation –II Lab				√	√		√	√
27	Essentials of microprocessor 8085 & 8086	√	√					√	
28	Essentials of microprocessor 8085 & 8086 Lab				√	√	√	√	
29	Power devices and Electrical machines	√		√			√	√	√
30	Power devices and Electrical machines Lab				√	√	√	√	

#	Course								
31	Advanced Biomedical Instrumentation	√	√		√		√	√	√
32	Advanced Biomedical Instrumentation Lab				√	√	√		√
33	Analog Devices and Circuits	√	√	√			√	√	
34	Analog Devices and Circuits Lab				√	√	√	√	
35	Control System	√		√					
36	Control System Lab				√	√			
37	Embedded Systems and Robotics	√	√	√			√		
38	Embedded Systems and Robotics Lab				√	√	√		√
39	Industrial Automation	√	√	√	√	√	√	√	√
40	Industrial Automation Lab		√		√	√	√		√