Criteria	2 Teaching-learning and Evaluation
Key Indicator	2.6 Student Performance and Learning Outcomes
Metric	2.6.1 The institution has stated learning outcomes (generic and programme specific) / graduate attributes which are integrated into assessment process and widely publicized through the website and other documents

COs of All Courses – Department of Physics and Materials Science

(BTech)

IQAC

SNo	Course Code	Course Name	Course Outcomes
1.	18B11PH111	Engineering Physics-I	CO-1 To learn the fundamental of physical optics CO-2 To implement the concepts and theory for solving the application related problems of physical optics CO-3 To learn the basic and mathematical methods for relativity and related fields CO-4 To learn the basic concepts of modern, laser and thermal physics CO-5 To implement the concept of modern and thermal physics; analyzing and solving the related problems.
2.	18B17PH171	Engg. Physics Lab – I	CO -1 To Understand different aspects of Optics and Optical Instruments and their use in determining wavelength and refractive index of materials. CO- 2 To helps the students to understand the concepts of interference, polarization and introduce them to understand the properties of coherent and incoherent source. CO -3 To demonstrate the scientific results based on observation. CO -4 To develop collaborative learning skills and scientific discussion for clear and concise conclusion on particular scientific results.
3.	18B11PH112	Basic Engineering Physics - I	CO-1 Understand the basic concepts of nature light and matter. CO-2 Apply the concept of light in physical optics and lasers. CO-3 Acquire the fundamental knowledge of viscosity and surface tension. CO-4 Familiarized with the basic concepts of nuclear physics and nanotechnology. CO-5 Execute the concepts and theories in solving the problems.
4.	18B17PH172	Basic Engineering Physics Lab-I	CO-1 Insight of core Basic Engineering Physics theory course to correlate their theoretical knowledge with experiment directly. CO-2 To demonstrate an ability to make physics measurements and understand the limits of precision in measurements. CO-3 Working knowledge and principle of various instruments. CO-4 To demonstrates the ability to prepare a

			valid laboratory notebook. CO-5 To make students regular and punctual in performing experiments and to develop collaborative learning skills.
5.	18B11PH211	Engineering Physics-II	CO-1 To learn the fundamentals of vector calculus and its applications in electrostatics CO-2 Knowledge of, physical interpretation, and ability to apply Maxwell's equations to determine field waves, potential waves, energy ,charge conservation conditions and other diverse engineering problems CO-3 Able to distinguish Step Index, Graded index fibers and compute mode volume and Implementation of numerical methods for calculating the design parameters of optical fiber. CO-4 To understand the basics of statistical distributions and use Maxwell-Boltzmann distribution, Fermi-Dirac and Bose-Einstein distributions to solve problems in some physical systems CO-5 To analyze atomic structure, Crystal structure, Crystal axes and planes, X-ray diffraction data and effect of energy bands on electronic behavior of solids. CO-6 To understand the concepts of modern solid state physics, various properties of semiconductors and apply Hall effect to calculate allied parameters of semiconductors
6.	18B17PH271	Engineering Physics Lab-II	CO-1 To Understand different aspects of magnetism and semi conductive properties of materials and their use in design of various devices. CO-2 To helps the students to understand the concepts of light propagation in optical fiber and introduce them to various losses in optical fiber communication. CO-3 To demonstrate the scientific results based on observation. CO-4 Scientific discussion for clear and concise conclusion on particular scientific results. CO-5 To develop collaborative learning skills
7.	18B1WPH212	Bioinstrumentation Techniques	CO-1 Knowledge about different degrees of freedom of biological molecules with varying energy of the electromagnetic spectrum. CO-2 Basic underlying techniques of the analytical instruments, their principle and

			working.
			CO-3 Information about different spectroscopic Techniques (microwave, Raman, FTIR, Electronic, Electronic, ESR, NMR etc).
			CO-4 Strong foundation of biophysical methods and their practical application in the field of bioinfomatics and biotechnology.
			CO-5 Complete understanding of the structure-function activity of biomolecules.
8.	18B1WPH532	Applied Materials Science	CO-1 To learn the fundamentals and Science of Materials
			CO-2 To implement the concepts and theories for analyzing the behaviour of the materials.
			CO-3 To execute the concepts and theories in solving the problems related to material properties and their applications.
			CO-4 To introduce innovations in areas like Display Technology and Engineering Materials Science, etc.
			CO-5 To analyze various materials for scientific and technical applications.
9.	18B1WPH531	Science and Technology of Materials	CO-1 To learn the fundamentals and Science of Materials.
			CO-2 To implement the concepts and theories for analyzing the behaviour of the materials.
			CO-3 To execute the concepts and theories in solving the problems related to material properties and their applications.
			CO-4 To introduce innovations in areas like Display Technology and Engineering Materials Science, etc.
			CO-5 To analyze various materials for scientific and technical applications.
10.	18B1WPH731	Nanotechnology	CO-1 Students will be able to learn basics of nanotechnology.
			CO-2 Synthesis of nanomaterials based on requirement
			CO-3 Characterization techniques and tools.
			CO-4 Students will learn the effect of nano-transformation on properties of materials.
			CO-5 Applications of nanotechnology in their respective fields as well as in interdisciplinary science and engineering.
11.	18B1WPH732	Optical Fiber Network Design	CO-1 To revise and understand about the basic working of optical fibers
			CO-2 To design the basic structure of optical

			fibers CO-3 To understand the layout of optical fiber networks. CO-4 Apply CO-02 and 03 to design and understand working of optical fiber networks.
12.	18B1WPH831	Optoelectronic Devices	CO-1 To define and explain the physics governing laser behaviour and light matter interaction. CO-2 To calculate properties of and design modern optical waveguides, microwave waveguides, photonic crystals fibers and microwave hybrid circuits. CO-3 To approach and solve new problems in a range of advanced topics in Non linear optics Usage CO-4 To understand important and unique engineering issues at microwave and millimeter wave frequencies. CO-5 To learn the applications of the microwave devices in the design of useful systems such as radars, receivers, etc.