



Ready for
Every Good Work

SACRED HEART COLLEGE (AUTONOMOUS)

Tirupattur – 635 601, Tamil Nadu, S.India

Resi : (04179) 220103

College : (04179) 220553

Fax : (04179) 226423

A Don Bosco Institution of Higher Education, Founded in 1951 * Affiliated to Thiruvalluvar University, Vellore * Autonomous since 1987

Accredited by NAAC (4th Cycle – under RAF) with CGPA of 3.31 / 4 at 'A+' Grade

Name of the Course	Course Code	Name of the Program	Activities with direct bearing on Employability/ Entrepreneurship/ Skill development	Year of introduction
Mathematical Physics-I	P717	M.Sc Physics	Employability: Contents: Probability Activities: Making to understand the concepts, enable the students to solve problems related to employability skills such as mean, median and mode etc..	2021-22
Quantum Mechanics-I	P719	M.Sc Physics	Employability: Contents: 100% Activities: Illustrative Discussions, Trouble shooting problems in QM approach	2021-22

Astrophysics	P720C	M.Sc Physics	Employability: Contents: Eclipses Activities: Collecting the data of lunar and solar eclipses for the past ten years, Observe eclipses	2021-22
Mathematical Physics-II	P820	M.Sc Physics	Employability: (20%) Contents: Probability Activities: Making to understand the concepts, enable the students to solve problems related to employability skills such as mean, median and mode etc..	2021-22
Quantum Mechanics-II	P822	M.Sc Physics	Employability: Contents: 100%. Activities: Problem Solving on approximation methods, Peer group discussions on perturbation theory, Assignments on scattering theory, Seminars on Relativistic wave equations.	2021-22

Ultrasonics and its Applications		M.Sc Physics	Employability: (40%) Contents: Ultrasonic Non-Destructive Testing, Ultrasound in Medicine Activities: Understanding the concepts, demonstrating and Visiting hospitals to visualize and experiencing the uses of ultrasound	2021-22
Solid State Physics	P917	M.Sc Physics	Employability: Contents: Structure Factor, Motion in Magnetic Fields, Semiconductor Crystals, Thermal Conductivity of Metals, Hall effect, SQUIDS- Curie point and exchange integral- Heisenberg's interpretation of Weiss field-Magnons-Curie temperature and susceptibility of ferrimagnets	2021-22
Atomic and Molecular Spectroscopy	P918	M.Sc Physics	Employability: Contents: 100% Activities Discussions on structure determination, Video modules on UV, NMR spectra, Mossbauer spectroscopy and Surface Spectroscopy, Rotational Spectroscopy Skill Development: Contents: 100% Activities: Interactive	2021-22

			discussions on spectroscopic techniques, Experimental determination of molecules from FTIR, FT-Raman and NMR data	
Computational Quantum Mechanics	P920C	M.Sc Physics	Employability 100% Contents: Application to Ab initio method, Born-oppenier approximation- Geometric optimization, calculation of equilibrium geometries Activities: Problem solvin sessions, software simulation	2021-22
Shock Waves and High Pressure Physics in Material Science		M.Sc Physics	Employability: Contents: How to assemble and execute a Shock Tube Activities : assembling Shock Tube and observe the behaviour of materials under shock loaded conditions	2021-22
Electrical Appliances		M.Sc Physics	Employability: Identify the different electrical/electronic components for house hold applications, Realize the electrical wiring for household electrical connections, construction and working mechanism of	2021-22

			some household electrical appliances.	
Electronic Instrumentation Techniques	P1015	M.Sc Physics	Employability: – ECG - waveform – electrodes and leads – Einthoven triangle – block diagram - EEG- EMG - CT scanners	2021-22
Nuclear and Particle Physics	P1016	M.Sc Physics	Employability: Contents: Nucleo synthesis and abundance of elements,Elementary particles- Classification of elementary particles- Types of interactions between elementary particles Activities : Mind mapping, Group discussion ,Demonstration, Hands on training	2021-22
Modern Optics	P1017A	M.Sc Physics	Employability development: Contents: Laser Systems: Gas, Liquid and solids, optical and optoelectronic materials Activities: Class room discussion, Video Modules on lasers, Quiz, Problem solving, seminar	2021-22

Reactor Physics	P1017B	M.Sc Physics	Employability : Contents: PWR, BWR, HWR, Water Moderated Enriched Reactors- The breeder reactor- future of nuclear fission power.Generation-I, II, III, IV Reactors Activities : Mind mapping, Group discussion ,problem solving . If they complete the course successfully a candidate eligible for getting position at BARC, Nuclear reactor sites etc	2021-22
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