



# SACRED HEART COLLEGE (AUTONOMOUS)

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Ready for  
Every Good Work

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

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

## M.Sc. Physics

| SEM          | Subject        | Title of the Paper  | Ins.Hrs     | Credits        |
|--------------|----------------|---|-------------|----------------|
| I            | MC             | Mathematical Physics-I  | 5           | 4              |
|              | MC             | Classical Mechanics and Statistical Mechanics   | 5           | 4              |
|              | MC             | Quantum Mechanics-I   | 5           | 4              |
|              | MC             | Advanced Physics Practicals   | 5           | -              |
|              | MC             | Electronic Experiments  | 6           | -              |
|              | Elective       | 1. Electronic Devices and Applications<br>2. Energy and Environmental Physics<br>3. Astrophysics  | 4           | 4              |
| II           | MC             | Mathematical Physics-II   | 5           | 4              |
|              | MC             | Electromagnetic Theory  | 5           | 4              |
|              | MC             | Quantum Mechanics-II  | 5           | 4              |
|              | MC             | Advanced Physics Practicals   | 6           | 6              |
|              | MC             | Electronic Experiments  | 5           | 6              |
|              | Elective       | 1. Microprocessor 8085 and Microcontroller 8051<br>2. Geophysics<br>3. Bio Physics                | 4           | 4              |
|              | SSP            | 1. Ultrasonics and its Applications<br>2. Dielectric Spectroscopy<br>3. Crystal growth techniques | -<br>-<br>- | 2*<br>2*<br>2* |
| III          | MC             | Solid State Physics   | 5           | 4              |
|              | MC             | Atomic and Molecular Spectroscopy   | 5           | 4              |
|              | MC             | C Programming and Research Methodology  | 5           | 4              |
|              | MC             | Modern Physics Practicals   | 5           | -              |
|              | MC             | Microprocessor and C Programming Experiments  | 5           | -              |
|              | Elective       | 1. Nanoscience and Technology<br>2. Optical Physics<br>3. Computational Quantum Mechanics         | 4           | 4              |
|              | SSP            | 1. Shock Waves and High-Pressure Physics in Material Science                                      | -           | 2*             |
|              |                | 2. Electrical Appliances  | -           | 2*             |
|              |                | 3. Research and Publication ethics  | -           | 2*             |
| Core         | <b>Project</b> | 1   | -           |                |
| IV           | MC             | Electronic Instrumentation Techniques   | 5           | 4              |
|              | MC             | Nuclear and Particle Physics  | 5           | 4              |
|              | MC             | Modern Physics Practicals   | 5           | 6              |
|              | MC             | Microprocessor and C Programming Experiments  | 5           | 6              |
|              | MC             | <b>Project</b>  | 4           | 5              |
|              | Elective       | 1. Modern Optics<br>2. Reactor Physics<br>3. Digital Signal Processing                            | 4           | 4              |
|              |                | <b>Human Rights</b>   | <b>2</b>    | <b>1</b>       |
| <b>Total</b> |                |   | <b>120</b>  | <b>90+4*</b>   |

## **Project and Viva**

There shall be two project reviews. The students shall identify and propose a research problem and present their research plan during the first review which will be conducted during the middle of the III semester. Second project review shall be conducted during the middle of the IV semester wherein the students shall present their findings. All the final year students and all the supervisors shall be available for both the reviews.

| <b>Component</b> | <b>Marks</b> |
|------------------|--------------|
| Dissertation     | 80           |
| Viva-voce        | 20           |
| Total            | 100          |

Candidates should submit a dissertation on or before the date fixed by the office of the controller of examinations. The dissertation shall be evaluated for 80 marks and the viva-voce examination shall be conducted for 20 marks. There shall be two evaluations of the dissertation, one by the supervisor and the other by an external examiner chosen from a panel of examiners recommended by the department. The average of the two marks shall be the mark for the dissertation. The viva- voce examination shall be conducted for 20 marks separately by the respective supervisor and the external examiner. The average of the marks awarded by the two examiners shall be the mark for the viva -voce.