BON SECOURS COLLEGE FOR WOMEN (AUTONOMOUS)

Accredited with A++ Grade by NAAC in Cycle II
Affiliated to Bharathidasan University, Tiruchirappalli
UGC Recognized 2(f) and 12(B) Institution
VILAR BYPASS, THANJAVUR - 613 006, TAMIL NADU

DEPARTMENT OF PHYSICS
M.SC. PHYSICS
STRUCTURE OF THE CURRICULUM
DISTRIBUTION OF COURSES CREDITS AND CONTACT HOURS

Type of Courses	Course Code	Title of the Course	Credits	Marks	Contact Hours/ Week
SEMESTER-I					
Core-Theory 1	24PPH101	Classical Mechanics and Relativity	4	100	5
Core-Theory 2	24PPH102	Mathematical Physics	4	100	5
Core-Theory 3	24PPH103	Advanced Electronics	4	100	5
Elective - Theory 1	24PPH201 24PPH204 24PPH207	8085 Microprocessor and 8051 Microcontroller Bio Physics Materials Science	4	100	5
Elective Theory-2	24PPH210 24PPH213 24PPH216 24PPH219	Advanced Optics Physics of Nanoscience and Nanotechnology Spectroscopy Global warming and Climate Change	4	100	4
Core Laboratory-1	24PPH301	Advanced General Physics Lab	2	100	4
Research Review	24PPH601	Research Review	2	100	2

			24	700	30
SEMESTER-II					
Core – Theory 4	24PPH104	Quantum Mechanics	4	100	5
Core – Theory 5	24PPH105	Electromagnetic Theory	4	100	5
Core-Theory 6	24PPH106	Advanced Mathematical Physics	4	100	5
Core Laboratory-2	24PPH302	Analog and Digital Electronics Lab	2	100	4
Core Laboratory - 3	24PPH303	Computational Programming Lab	2	100	4
Elective Theory-2	24PPH202 24PPH205 24PPH208	Numerical methods and C++ Programming Medical Physics Characterization of Materials	4	100	4
Core Article Publication-1	24PPH602	Research Report	-	CIA	1
Ability Enhancement	24PPH451	Innovation Skills	1	100	2
			21	700	30
SEMESTER-III					
Core – Theory 7	24PPH107	Condensed Matter Physics	4	100	5
Core – Theory 8	24PPH108	Advanced Quantum Mechanics	4	100	5
Core-Theory 9	24PPH109	Thermodynamics and Statistical Mechanics	4	100	5
Core Laboratory - 4	24PPH303	Advanced Experimental Physics Lab	2	100	4

Elective - Theory	24PPH212 24PPH214 24PPH217 24PPH220	Laser theory and Applications Crystal Growth and Thin film Physics Advanced Spectroscopy Solar Energy Utilization	4	100	4
Application Development	24PPH603	PCB Design in Simulation	2	100	4
Ability Enhancement	24PPH401	Soft and Quantitative Skills- Quantitative Skills for Employability	1	100	2
Core Article Publication – 1	24PPH602	Research Report	*	*	1
			21	700	30
SEMESTER-IV					
Core – Theory 10	24PPH110	Nuclear and Particle Physics	4	100	5
Elective Theory-1	24PPH203 24PPH206 24PPH209	Physics based simulation with Python Biomedical Instrumentation Analysis of crystal structure	4	100	4
Elective Theory-2 (Self-Study)	24PPH212 24PPH215 24PPH218 24PPH221	Digital Communication Analytical Characterization Techniques Data Analysis and Interpretation Energy Efficiency and Management	4	100	4
Core Article Publication – 1	24PPH602	Research Report	2	100	2
Core: Internship	24PPH605	Internship	2	100	-
Core: Project	24PPH605	Research Project	8	100	15
Sub-Total			24	600	30

Total	90	2700	120

Total Credits :24+21+21+24= 90

Total Marks : 2700

M.Sc., Physics
List of Courses
Core Courses (Compulsory)

Theory:

- 24PPH101: Classical Mechanics & Relativity
- 24PPH102: Mathematical Physics
- 24PPH103: Advanced Electronics
- 24PPH104: Quantum Mechanics
- 24PPH105: Electromagnetic Theory
- 24PPH106: Advanced Mathematical Physics
- 24PPH107: Condensed Matter Physics
- 24PPH108: Thermodynamics & Statistical Mechanics
- 24PPH109: Advanced Quantum Mechanics
- 24PPH110: Nuclear & Particle Physics

Laboratory:

- 24PPH301:Advanced General Physics Lab
- 24PPH302:Analog & Digital Electronics Lab
- 24PPH303: Computational Programming Lab
- 24PPH304:Advanced Experimental Physics Lab
- 24PPH601: Research Review
- 24PPH602: Research Report

APP Development:

- 24PPH603:PCB Design in Simulation
- 24PPH604: Industrial Training / Internship
- 24PPH605: Research Project

Elective-Group 1- Industry-Any one track

Track 1-Elective: Embedded system

- 24PPH201:8085 Microprocessor & 8051Microcontroller
- 24PPH202:Numerical methods & C++ Programming
- 24PPH203:Physics based simulation with Python

Track 2-Elective: Bio-Medical Physics

- 24PPH204:Bio Physics
- 24PPH205:Medical Physics
- 24PPH206:Biomedical Instrumentation

Track 3- Elective: Materials Development

- 24PPH207:Materials Science
- 24PPH208:Characterization of Materials
- 24PPH209:Analysis of Crystal structure

Elective-Group 2 Academic Research-Any one track

Track 4-Elective: Optical Physics

- 24PPH210: Advanced Optics
- 24PPH211: Laser theory & Applications
- 24PPH212: Digital Communication (Self Study)

Track 5-Elective: Nanoscience & Nanotechnology

- 24PPH213:Physics of Nanoscience & Nanotechnology
- 24PPH214:Crystal Growth & Thin film Physics
- 24PPH215:Analytical Characterization Techniques (Self Study)

Track 6- Elective: Spectroscopy

- 24PPH216:Spectroscopy
- 24PPH217:Advanced Spectroscopy
- 24PPH218:Data Analysis and Interpretation (Self Study)

Track 7-Elective: Energy & Environment

- 24PPH219:Global Warming & Climate Change
- 24PPH220:Solar Energy Utilization
- 24PPH221:Energy Efficiency & Management (Self Study)

Ability Enhancement Courses

Innovation Skills

- 24PPH451:Technological Advances in Modern Physics Discoveries

Soft & Quantitative Skill

- 24PPH401:Quantitative Skills for Employability

Value Added Courses

- 24PPH501: Photovoltaic System
- 24PPH502: Embedding Sensor
- 24PPH503: Sensors and Sensing Techniques

NPTEL Courses

- A Brief Course on Superconductivity
- Physics through Computational Thinking
- Experimental Physics - II