

B.Sc Physics with Computer Applications

Syllabus

AFFILIATED COLLEGES

Program Code: 26D

2022– 2023 Admitted



BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC,
Ranked 13th among Indian Universities by MHRD-NIRF,
World Ranking: Times-801-1000, Shanghai-901-1000, URAP- 982)

Coimbatore- 641046, TamilNadu, India

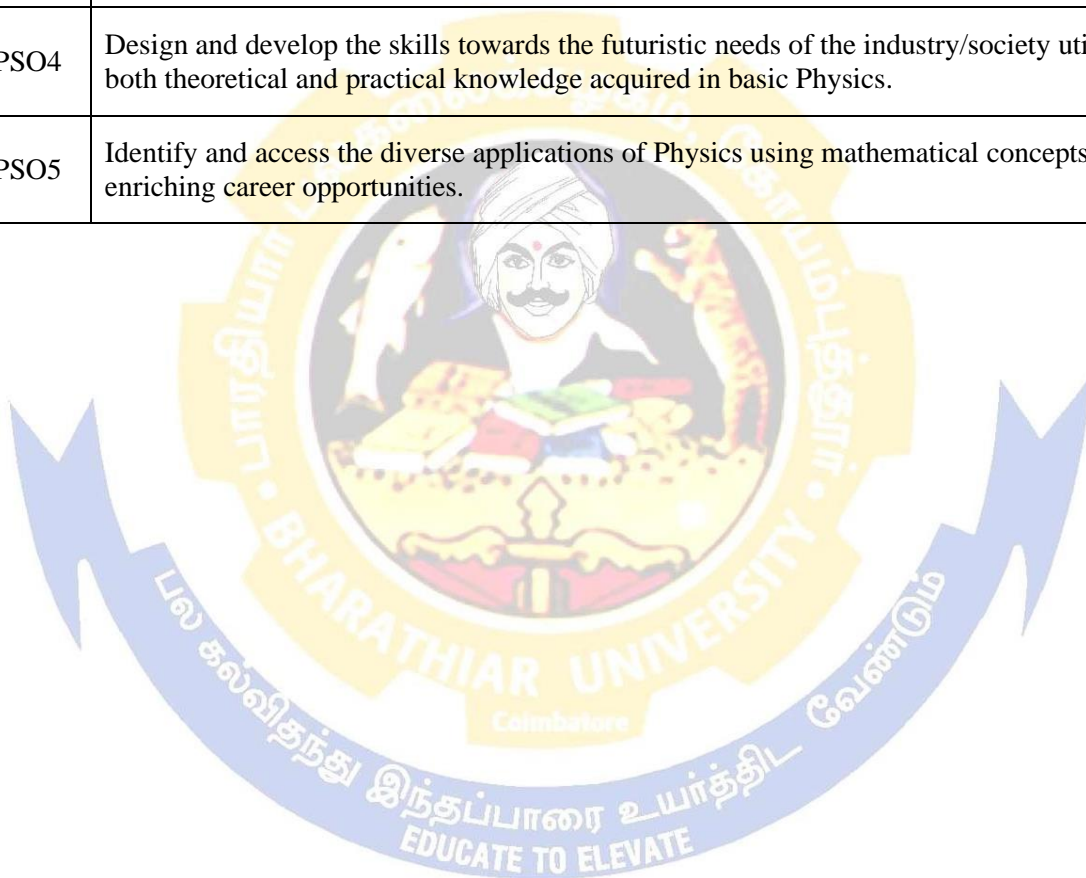
| Program Educational Objectives (PEOs) | |
|---|--|
| On obtaining an under graduate degree the students will be able to, | |
| PEO1 | Have a strong foundation in basic sciences, mathematics and computational platforms. |
| PEO2 | Acquire professional and ethical attitude, develop communicative skills, team work spirit, multidisciplinary approach, and an ability to relate and solve scientific/technical issues. |
| PEO3 | Enter into higher studies leading to post-graduate and research degrees. |
| PEO4 | Apply and advance the knowledge and skills acquired to become a competent professional in their chosen field. |
| PEO5 | Serve the society with scientific advancement and actively take part in building a knowledge-based society. |
| PEO6 | comprehend, analyze ,design and create novel products and solutions for the real-life problems through good scientific and technical knowledge. |
| PEO7 | Become an entrepreneur who can make and sell scientific products in the market. |
| PEO8 | Engross in life-long learning to keep themselves abreast of new developments and to face global challenges. |



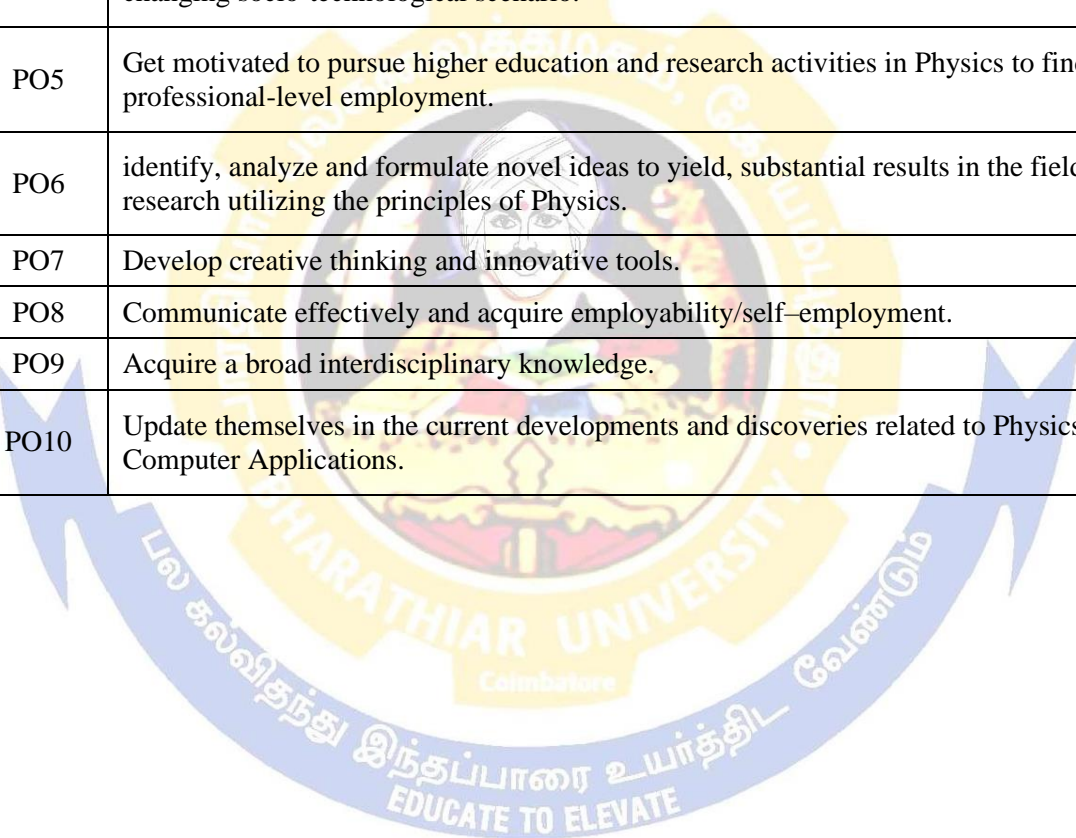
Program Specific Outcomes (PSOs)

After the successful completion of the B.Sc Physics CA programme, the students are expected to,

| | |
|------|--|
| PSO1 | Realize the role of Physics and Computer in day-to-day life. |
| PSO2 | Communicate explicitly and exchange ideas with regard to the impacts of various components of Physics on the environment and society. |
| PSO3 | Expertise in various domains of Physics and Computer Applications. |
| PSO4 | Design and develop the skills towards the futuristic needs of the industry/society utilizing both theoretical and practical knowledge acquired in basic Physics. |
| PSO5 | Identify and access the diverse applications of Physics using mathematical concepts enriching career opportunities. |



| Program Outcomes (POs) | |
|--|--|
| On successful completion of the B.Sc Physics CA programme, the students will be able to, | |
| PO1 | Understand the basic concepts and significance of various physical phenomena. |
| PO2 | Transform ideas into action i.e., lab to land. |
| PO3 | Acquire a wide range of problem-solving skills, both analytical and computational and to apply them. |
| PO4 | Develop an independent and self-disciplined specialized learning in tune with the changing socio-technological scenario. |
| PO5 | Get motivated to pursue higher education and research activities in Physics to find professional-level employment. |
| PO6 | identify, analyze and formulate novel ideas to yield, substantial results in the fields of research utilizing the principles of Physics. |
| PO7 | Develop creative thinking and innovative tools. |
| PO8 | Communicate effectively and acquire employability/self-employment. |
| PO9 | Acquire a broad interdisciplinary knowledge. |
| PO10 | Update themselves in the current developments and discoveries related to Physics and Computer Applications. |



| Part | Course Code | Title of the Course | Credits | Hours/week | | Maximum Marks | | |
|--------------------------------|------------------|---|-----------|------------|-----------|---------------|-----------|------------|
| | | | | Theory | Practical | CIA | CEE | Total |
| FIRST SEMESTER | | | | | | | | |
| I | 11T | Language- Tamil I | 4 | 6 | - | 50 | 50 | 100 |
| II | 12E | English-I | 4 | 6 | - | 50 | 50 | 100 |
| III | 13A | Core I – Mechanics, Properties of Matter and Sound | 4 | 6 | - | 50 | 50 | 100 |
| III | 23P | Core – Physics Practical I | - | - | 3 | - | - | - |
| III | 1AA | Allied Mathematics I | 4 | 7 | - | 50 | 50 | 100 |
| IV | 1FA | Environmental Studies | 2 | 2 | - | - | 50 | 50 |
| Total (First Semester) | | | 18 | 27 | 3 | | | 450 |
| SECOND SEMESTER | | | | | | | | |
| I | 21T | Language- Tamil II | 4 | 6 | - | 50 | 50 | 100 |
| II | 22E | English-II | 2 | 4 | - | 25 | 25 | 50 |
| II | 2NM ^s | Effective English: Language Proficiency for Employability http://kb.naanmudhalvan.in/Bharathiar_University_(BU) | 2 | 2 | - | 25 | 25 | 50 |
| III | 23A | Core II – Heat and Thermodynamics | 4 | 6 | - | 50 | 50 | 100 |
| III | 23P | Core – Physics Practical I | 4 | - | 3 | 50 | 50 | 100 |
| III | 2AA | Allied Mathematics II | 4 | 7 | - | 50 | 50 | 100 |
| IV | 2FB | Value Education – Human Rights | 2 | 2 | - | - | 50 | 50 |
| Total (Second Semester) | | | 22 | 27 | 3 | | | 550 |
| THIRD SEMESTER | | | | | | | | |
| I | 31T | Language – Tamil III | 4 | 6 | - | 50 | 50 | 100 |
| II | 32E | English-III | 4 | 6 | - | 50 | 50 | 100 |
| III | 33A | Core III – Optics | 4 | 4 | - | 50 | 50 | 100 |
| III | 43P | Core - Physics Practical II | - | - | 2 | - | - | - |
| III | 3AH | Allied Chemistry I | 3 | 4 | - | 30 | 45 | 75 |
| III | 4PH | Allied Chemistry Practical | - | - | 3 | - | - | - |
| IV | 3ZA | Skill Based Subject –MS Office | 3 | 3 | - | 30 | 45 | 75 |
| IV | 3FC | Non-major elective - I Women's Rights # | 2 | 2 | - | - | 50 | 50 |
| Total (Third Semester) | | | 20 | 25 | 5 | | | 500 |
| FOURTH SEMESTER | | | | | | | | |
| I | 41T | Language - Tamil IV | 4 | 6 | - | 50 | 50 | 100 |
| II | 42E | English-IV | 4 | 6 | - | 50 | 50 | 100 |
| III | 43A | Core IV – Atomic Physics and Spectroscopy | 4 | 4 | - | 50 | 50 | 100 |
| III | 43P | Core – Physics Practical II | 3 | - | 2 | 30 | 45 | 75 |
| III | 4AH | Allied Chemistry II | 3 | 4 | - | 30 | 45 | 75 |
| III | 4PH | Allied Chemistry Practical | 2 | - | 3 | 25 | 25 | 50 |
| IV | 4ZB | Skill based subject-Principles of Programming Concepts and C Programming | 2 | 3 | - | 25 | 25 | 50 |

| | | | | | | | | |
|-----------------------|--------------------------------|---|------------|-----------|----------|-----------|-----------|-------------|
| IV | 4NM ⁵ | Office Fundamentals: Digital Skills for Employability http://kb.naanmudhalvan.in/Bharathiar_University_(BU) | 2 | | | 25 | 25 | 50 |
| IV | 4FE | Non-major elective II General Awareness | 2 | 2 | - | - | 50 | 50 |
| | Total (Fourth Semester) | | 26 | 25 | 5 | | | 650 |
| FIFTH SEMESTER | | | | | | | | |
| III | 53A | Core V – Mathematical Physics | 4 | 5 | - | 50 | 50 | 100 |
| III | 53B | Core VI -Electronics | 4 | 4 | - | 50 | 50 | 100 |
| III | 53C | Core VII - Solid State Physics | 4 | 5 | - | 50 | 50 | 100 |
| III | 53D | Core VIII - Electricity and Magnetism | 4 | 4 | - | 50 | 50 | 100 |
| III | 63P | Core Practical III -Electronics | - | - | 2 | - | - | - |
| III | 5EA | Elective - I Principles of Digital Electronics and Microprocessor | 3 | 3 | - | 30 | 45 | 75 |
| III | 63Q | Elective Practical IV – Digital and Micro Processor | - | - | 2 | - | - | - |
| IV | 5ZC | Skill based Subject - Object Oriented Programming in C++ | 3 | 3 | - | 30 | 45 | 75 |
| IV | 6ZP | Skill based Practical V - Object Oriented Programming in C++ and MS Office | - | - | 2 | - | - | - |
| | Total (Fifth Semester) | | 22 | 24 | 6 | | | 550 |
| SIXTH SEMESTER | | | | | | | | |
| III | 63A | Core IX - Quantum Mechanics and Relativity | 4 | 5 | - | 50 | 50 | 100 |
| III | 63B | Core X - Nuclear Physics | 4 | 4 | - | 50 | 50 | 100 |
| III | 63C | Core XI - Numerical Methods | 4 | 5 | - | 50 | 50 | 100 |
| III | 63D | Core XII - Fundamental of Nanomaterials | 4 | 4 | - | 50 | 50 | 100 |
| III | 63P | Core Practical III - Electronics | 4 | - | 3 | 50 | 50 | 100 |
| III | 6EA | Elective - II MATLAB | 3 | 3 | - | 30 | 45 | 75 |
| III | 63Q | Elective Practical IV - Digital and Micro Processor | 3 | - | 2 | 30 | 45 | 75 |
| IV | 6ZP | Skill based Practical V - Object Oriented Programming in C++ and MS Office | 2 | - | 2 | 25 | 25 | 50 |
| IV | 6NM ⁵ | Project Based learning - Advanced Platform Technology - (Physics, Electronics, Mathematics, Statistics, Data Science) - Govt(auto) & Govt (Non-Auto) Data Analytics with Advanced Tools - (Physics, Electronics, Mathematics, Statistics, Data Science) - Aided (Non-auto) & SF(Non-Auto) http://kb.naanmudhalvan.in/Bharathiar_University_(BU) | 2 | | 2 | 25 | 25 | 50 |
| V | 67A | Extension Activities | 2 | - | - | - | - | 50 |
| | Total (Sixth Semester) | | 32 | 21 | 9 | | | 800 |
| | Grand Total | | 140 | | | | | 3500 |

2NM⁵.4NM⁵,&6NM⁵-NAAN MUDALVAN COURSES