

# B.Sc Physics with Computer Applications

## Syllabus

**AFFILIATED COLLEGES**

**Program Code: 26D**

**2021– 2022 Admitted**

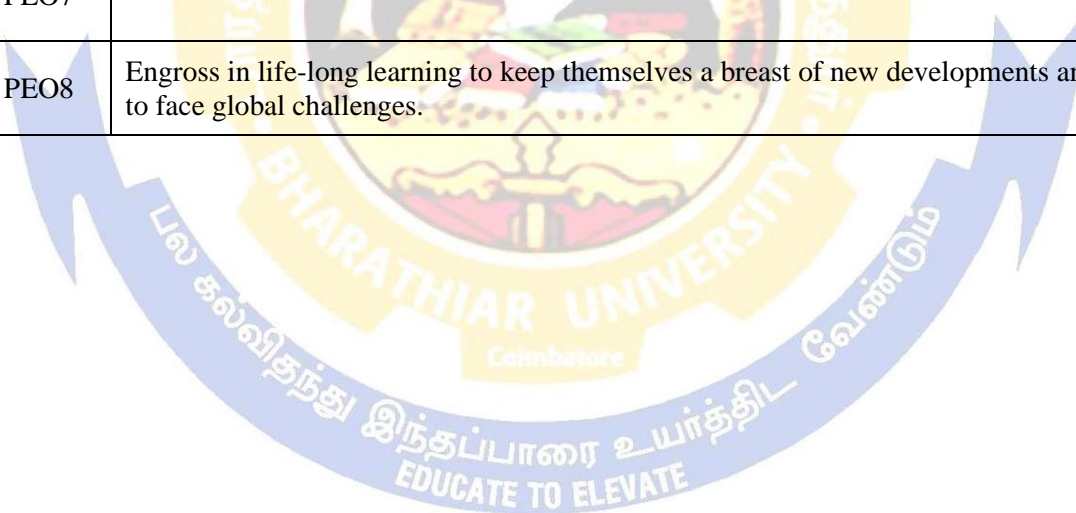


# **BHARATHIAR UNIVERSITY**

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

**Coimbatore- 641046, TamilNadu, India**

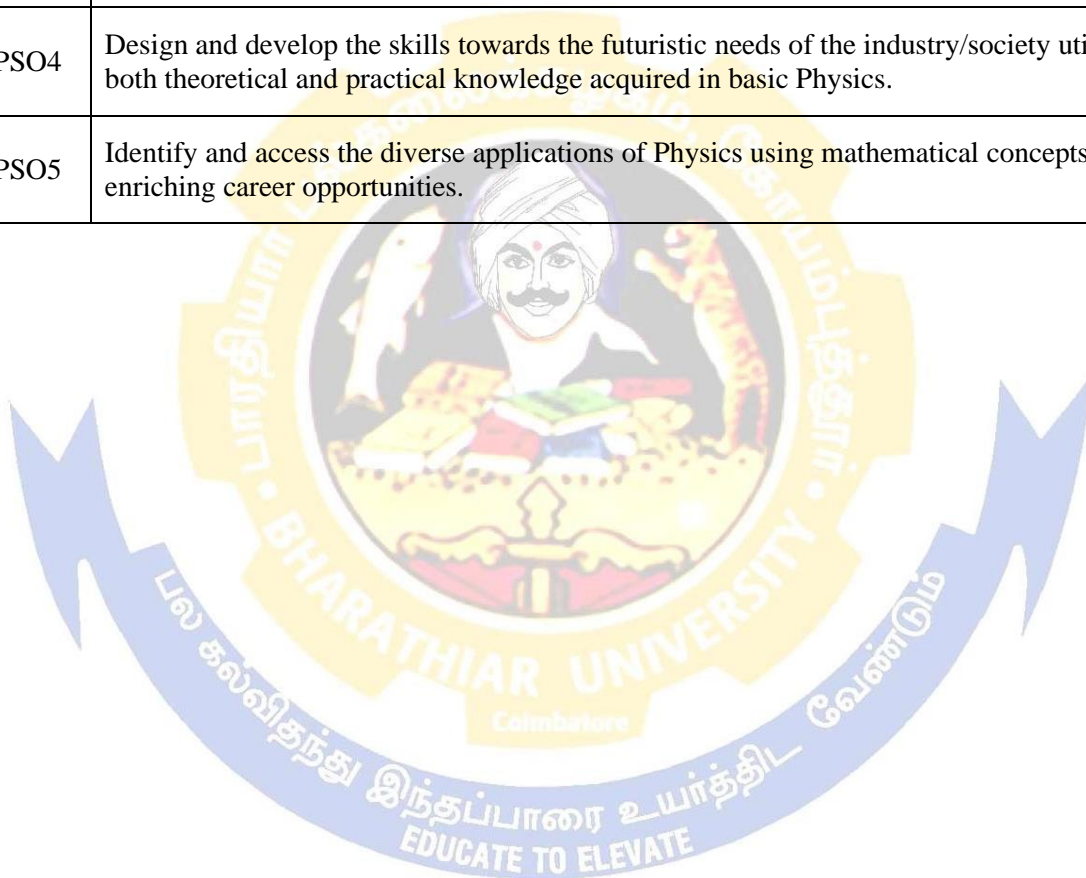
<b>Program Educational Objectives (PEOs)</b>	
On obtaining an under graduate degree the students will be able to,	
PEO1	Have a strong foundation in basic sciences, mathematics and computational platforms.
PEO2	Acquire professional and ethical attitude, develop communicative skills, team work spirit, 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.



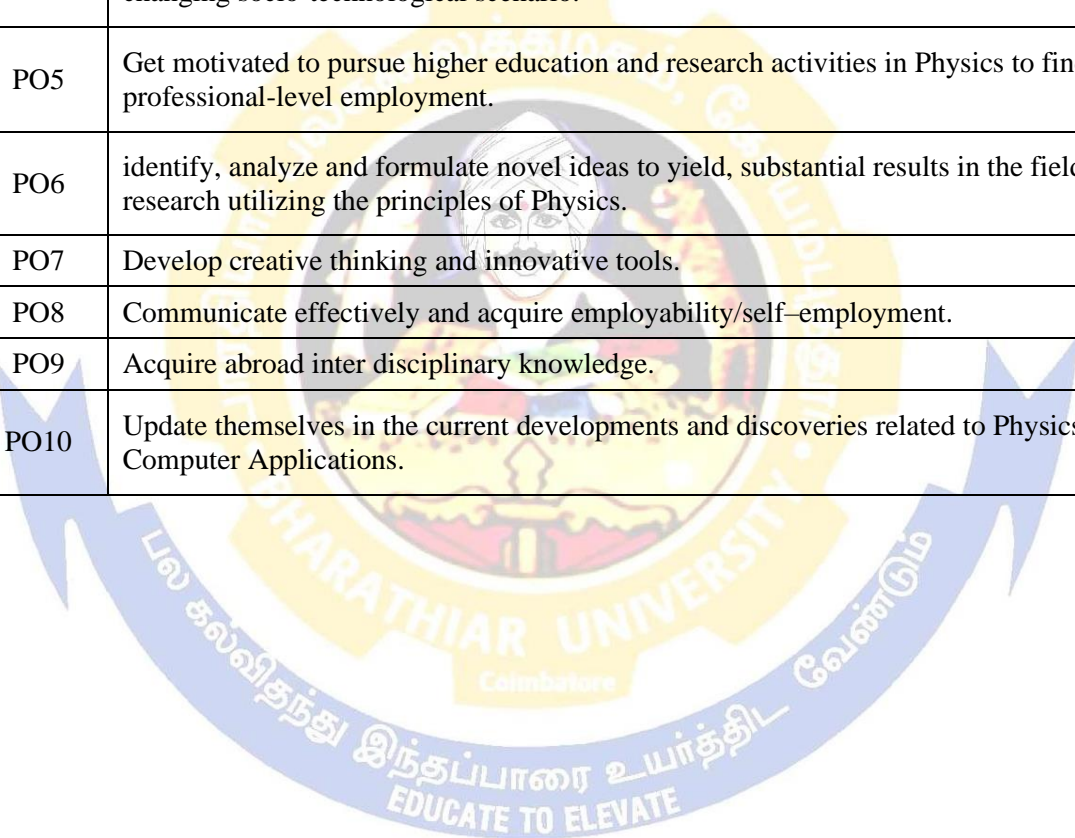
### Program Specific Outcomes (PSOs)

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.



<b>Program Outcomes (POs)</b>	
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 broad inter disciplinary 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
<b>FIRST SEMESTER</b>								
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
	<b>Total (First Semester)</b>		<b>18</b>	<b>27</b>	<b>3</b>			<b>450</b>
<b>SECOND SEMESTER</b>								
I	21T	Language- Tamil II	4	6	-	50	50	100
II	22E	English-II	4	6	-	50	50	100
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
	<b>Total (Second Semester)</b>		<b>22</b>	<b>27</b>	<b>3</b>			<b>550</b>
<b>THIRD SEMESTER</b>								
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
	<b>Total (Third Semester)</b>		<b>20</b>	<b>25</b>	<b>5</b>			<b>500</b>
<b>FOURTH SEMESTER</b>								
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 <sup>§</sup>	<b>Office Fundamentals: Digital Skills for Employability</b> <a href="http://kb.naanmudhalvan.in/Bharathiar_University_(BU)">http://kb.naanmudhalvan.in/Bharathiar_University_(BU)</a>	<b>2</b>			<b>25</b>	<b>25</b>	<b>50</b>

IV	4FE	Non-major elective II General Awareness	2	2	-	-	50	50
<b>Total (Fourth Semester)</b>			<b>26</b>	<b>25</b>	<b>5</b>			<b>650</b>
<b>FIFTH SEMESTER</b>								
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	-	-	-
<b>Total (Fifth Semester)</b>			<b>22</b>	<b>24</b>	<b>6</b>			<b>550</b>
<b>SIXTH SEMESTER</b>								
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 <sup>§</sup>	<b>Project Based learning - Advanced Platform Technology</b> - (Physics, Electronics, Mathematics, Statistics, Data Science) - Govt(auto) & Govt (Non-Auto) <b>Data Analytics with Advanced Tools</b> - (Physics, Electronics, Mathematics, Statistics, Data Science) - Aided (Non-auto) & SF(Non-Auto) <a href="http://kb.naanmudhalvan.in/Bharathiar_University_(BU)">http://kb.naanmudhalvan.in/Bharathiar_University_(BU)</a>	<b>2</b>		<b>2</b>	25	25	<b>50</b>
V	67A	Extension Activities	2	-	-	-	-	50
<b>Total (Sixth Semester)</b>			<b>32</b>	<b>21</b>	<b>9</b>			<b>800</b>
<b>Grand Total</b>			<b>140</b>					<b>3500</b>

2NM<sup>§</sup>.4NM<sup>§</sup>,&6NM<sup>§</sup>-NAAN MUDALVAN COURSES