



**PERIYAR  
MANIAMMAI**  
INSTITUTE OF SCIENCE & TECHNOLOGY  
(Deemed to be University)  
Established Under Sec. 3 of UGC Act, 1956 • NAAC Accredited  
think • innovate • transform

## Criterion 1 – Curricular Aspects

<b>Key Indicator</b>	1.2	Academic Flexibility
<b>Metric</b>	1.2.2	Percentage of Programmes in which Choice Based Credit System (CBCS)/elective course system has been implemented (Data for the latest completed academic year)

**DEPARTMENT OF PHYSICS  
STRUCTURE OF THE PROGRAM CLEARLY  
INDICATING  
COURSES, CREDITS/ELECTIVES**

**Programmes :**

- 1. B.Sc. Physics**
- 2. M.Sc. Physics**

**CURRICULUM**  
**B.Sc. Physics**  
**REGULATION 2021 (Revision – 1)**  
**SEMESTER – I**

Category	Code	COURSE NAME	L	T	P	SS	H	C
Part – I	XGT101/ XFT101	Tamil – 1/ Foundational Tamil – 1	2	1	0	0	3	3
Part – II	XGE102	English – I	2	1	0	0	3	3
Core – 1	XPH103	Properties of Matter and Sound	3	1	0	0	4	4
Core – 2	XPH104	Mechanics and Relativity	3	1	0	0	4	4
Core – 3	XPH105	Mechanics and Properties of Matter - laboratory	0	0	3	0	3	2
Core – 4	XMG106	Algebra, Trigonometry Applications of Laplace Transforms and Fourier series	4	1	0	0	5	5
UMAN–1	XUM001	Human Ethics, Values, Rights, and Gender Equality	1	0	0	1	2	1
		Library					1	
		Mentoring					1	
		Extension Activities NSS,NCC,NSO and RRC					2	
		<b>Total</b>					<b>28</b>	<b>22</b>

**SEMESTER – II**

<b>Category</b>	<b>Code</b>	<b>COURSE NAME</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>SS</b>	<b>H</b>	<b>C</b>
Part – I	XGT201/ XFT201	Tamil – II / Foundational Tamil - II	2	1	0	0	3	3
Part – II	XGE202	English – II	2	1	0	0	3	3
Core – 5	XPH203	Electricity and Magnetism	3	1	0	0	4	4
Core – 6	XPH204	Atomic Physics	3	1	0	0	4	4
Core – 7	XPH205	Electricity and Magnetism - laboratory	0	0	3	0	3	2
Core – 8	XMG206	Calculus and Differential Equations	4	1	0	0	5	5
UMAN–2	XUM002	Environmental Studies	1	0	0	1	2	1
		Library					1	
		Mentoring					1	
		Field Visit						2
		Extension Activities NSS,NCC,NSO and RRC					2	
		<b>Total</b>					<b>28</b>	<b>24</b>

### SEMESTER – III

Category	Code	COURSE NAME	L	T	P	SS	H	C
SEC – 1	XPH301	Physics Workshop Skills	0	0	3	0	3	2
Core –9	XPH302	Thermal Physics and Statistical Mechanics	3	1	0	0	4	4
Core –10	XPH303	Basic Electronics	3	1	0	0	4	4
Core –11	XPH304	Thermal and Electronics – Laboratory	0	0	3	0	3	2
Core – 12	XPH305	Inorganic, Organic and Physical Chemistry – I	3	1	0	0	4	4
Core –13	XPH306	Volumetric and Organic Qualitative Analysis Practical – I	0	0	3	0	3	2
UMAN–3	XUM003	Disaster Management	1	0	0	1	2	1
GE – 1		*Open Elective – To be chosen by student	3	0	0	0	3	3
		Library					1	
		Mentoring					1	
		Extension Activities NSS,NCC,NSO and RRC					2	
		<b>Total</b>					<b>30</b>	<b>22</b>

**SEMESTER – IV**

Category	Code	COURSE NAME	L	T	P	SS	H	C
SEC – 2	XPH401	Electrical Circuit Network Skills	0	0	3	0	3	2
Core – 14	XPH402	Waves and Optics	3	1	0	0	4	4
Core – 15	XPH403	Digital Electronics	3	1	0	0	4	4
Core – 16	XPH404	Optics and Digital Electronics - Laboratory	0	0	3	0	3	2
Core – 17	XPH405	Inorganic, Organic and Physical Chemistry – II	3	1	0	0	4	4
Core – 18	XPH406	Volumetric and Organic Qualitative Analysis Practical – II	0	0	3	0	3	2
UMAN-4	XUM004	Entrepreneurship Development	1	0	0	1	2	1
GE – 2		Generic Elective – 2	3	0	0	0	3	3
		Library					1	
		Mentoring					1	
		Extension Activities NSS,NCC,NSO and RRC					2	
		<b>Total</b>					<b>30</b>	<b>22</b>

**SEMESTER – V**

Category	Code	COURSE NAME	L	T	P	SS	H	C
SEC – 3	XPH501	Basic Instrumentation Skills	0	0	3	0	3	2
DSE1	XPH502A	Communication Electronics	3	1	0	0	4	4
	XPH502B	Nuclear and Particle Physics						
DSE2	XPH503A	Mathematical Physics	3	1	0	0	4	4
	XPH503B	Solid State Physics						
DSE3	XPH504A	Measurement and Instrumentation	3	1	0	0	4	4
	XPH504B	Microprocessor and C Programming						
DSE Lab	XPH505A	Electronics and Instrumentation - Laboratory	0	0	3	0	3	2
	XPH505B	Microprocessor and Microcontroller - Laboratory						
	XPH506	IPT (21 days)	–	–	–	–	–	4
GE – 3		Generic Elective – 3	3	0	0	0	3	3
		Library					1	
		Mentoring					1	
		Extension Activities NSS,NCC,NSO and RRC					2	
		<b>Total</b>					<b>25</b>	<b>23</b>

**SEMESTER – VI**

Category	Code	COURSE NAME	L	T	P	SS	H	C
SEC – 4	XPH601	Renewable and Energy Harvesting Skills	0	0	3	0	3	2
DSE 4	XPH602A	Laser Physics	3	1	0	0	4	4
	XPH602B	Nano Material and Applications						
DSE 5	XPH603A	Power Electronics	3	1	0	0	4	4
	XPH603B	Astronomy and Astrophysics						
DSE 6	XPH604A	Introduction of Microcontroller	3	1	0	0	4	4
	XPH604B	Quantum Mechanics						
DSE	XPH605	Project	–	–	8	–	8	8
UMAN–5	XUM005	Cyber Security	1	0	0	1	2	1
		Library					1	
		Mentor					1	
		Extension Activities NSS,NCC,NSO and RRC					2	2
		<b>Total</b>					<b>29</b>	<b>25</b>

**Total Credit : 22 + 24 + 22 + 22 + 23 + 25 = 138 Credits**

## M.Sc. Physics – Curriculum (2021)

### Semester I

Category	Subject code	Course Title	L	T	P	SS	H	C
Core Course I	YPH101	Mathematical Methods of Physics - I	4	1	0	0	5	5
Core Course II	YPH102	Classical Mechanics	4	1	0	0	5	5
Core Course III	YPH103	Electronics	4	1	0	0	5	5
Elective Course I	YPH104A	Numerical Methods Computational Programming	4	0	0	0	4	4
	YPH104B	Thermodynamics and Statistical Mechanics						
	YPH104C	Instrumental Methods of Analyses						
Core Course IV (Lab)	YPH106	Basic General and Electronics Laboratory	0	0	6	0	6	3
<b>Total</b>							<b>25</b>	<b>22</b>

### Semester II

Course	Subject code	Course Title	L	T	P	SS	H	C
Core Course V	YPH201	Mathematical Methods of Physics-II	4	1	0	0	5	5
Core Course VI	YPH202	Quantum Mechanics - I	4	1	0	0	5	5
Core Course VII	YPH203	Atomic and Molecular Spectroscopy	4	1	0	0	5	5
Core Course VIII	YPH204	Microprocessor and Microcontroller	4	1	0	0	5	5
Elective Course II	YPH205A	Physics and Technology of Thin films	4	0	0	0	4	4
	YPH205B	Crystal Growth and Characterization Techniques						
	YPH205C	Nanoscience and Technology						
Core Course IX (Lab)	YPH206	Digital and Microprocessor Laboratory	0	0	6	0	6	3
<b>Total</b>							<b>30</b>	<b>27</b>



### Semester III

Course	Subject code	Course Title	L	T	P	SS	H	C
Core Course X	YPH301	Solid State Physics	4	1	0	0	5	5
Core Course XI	YPH302	Nuclear and Particle Physics	4	1	0	0	5	5
Core Course XII	YPH303	Quantum Mechanics - II	4	1	0	0	5	5
Core Course XIII	YPH304	Electromagnetic Theory	4	1	0	0	5	5
Elective Course III	YPH305A	Micro Electro Mechanical Systems (MEMS)	3	1	0	0	4	4
	YPH305B	Solar Thermal and Photovoltaic Technology						
	YPH305C	Industrial Electronics						
Core Course XIV (Lab)	YPH306	Advanced General & Electronics Laboratory	0	0	6	0	6	3
							<b>30</b>	<b>27</b>

### Semester IV

Course	Subject code	Course Title	L	T	P	SS	H	C
Core Course XV	YPH401	Project Work and Viva voce	0	0	0	30	30	10

Note: L – Lecture Hours; T – Tutorial Hours; P – Practical Hours & C – Credits; SS – Self study