

PERIYAR MANIAMMAI INSTITUTE OF SCIENCE & TECHNOLOGY
FACULTY OF SCIENCE AND HUMANITIES
DEPARTMENT OF PHYSICS
M.Sc. Physics
CURRICULUM - REGULATIONS 2024

Category of courses and minimum credit requirement for M.Sc. Physics programme as per UGC Regulations 2024 are outlined below:

SI. No.	Course Category	Credits Required
1.	Foundation Courses	04
2.	Programme Core Courses	42 - 46
3.	Programme Elective Courses	12
4.	Online Courses	03 -06
5.	Employability Enhancement Courses (Internship / Field Visit / Professional Practices / Project / Research / Thesis / Dissertation)	20 - 24
6.	Value Added / Value Addition Courses (IKS, Community Engagement, Research Methodology and IPR)	08
Total		90 - 100

SEMESTER I

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Theory						
1	P24PH101	Semiconductor Devices and Circuits	3	1	0	4
2	P24PH102	Mathematical Physics	3	1	0	4
3	P24PH103	Classical Mechanics	3	1	0	4
4	P24PH104	Condensed Matter Physics	3	0	0	3
5	P24PH105	Data Science in Physics	3	0	0	3
6	P24PH9XX	Programme Elective - I	3	0	0	3
Practical						
7	P24PH106	General Physics Laboratory	0	0	4	2
Total			18	3	4	23

SEMESTER II

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Theory						
1	P24PH151	Quantum Mechanics	3	1	0	4
2	P24PH152	Electromagnetic Theory	3	1	0	4
3	P24PH153	Atomic and Molecular Spectroscopy	3	1	0	4
4	P24PH154	Analog and Digital Electronics	3	0	0	3
5	P24PH9XX	Programme Elective – II	3	0	0	3
6	P24RD001	Research Methodology	3	0	0	3
7	P24VA002	Community Engagement and Social Responsibility	1	0	2	2
Practical						
8	P24PH155	Applied Electronics Laboratory	0	0	4	2
Total			19	3	6	25

SEMESTER III

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Theory						
1	P24PH201	Nuclear and Particle Physics	3	1	0	4
2	P24PH202	Thermal and Statistical Mechanics	3	1	0	4
3	P24PH203	Microprocessors and Microcontrollers	3	0	0	3
4	P24PH9XX	Programme Elective – III	3	0	0	3
5	P24VA015	Astrophysics	3	0	0	3
Practical						
6	P24PH204	Microprocessors and Microcontrollers Laboratory	0	0	4	2
7	P24PH205	Computational Physics Laboratory	0	0	2	1
Internship / Field Visit						
8	P24EM201	Internship / Field Visit	0	0	0	2
Total			15	2	6	22

SEMESTER IV

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Theory						
1	P24PH9XX	Programme Elective – IV	3	0	0	3
2	P24PH8XX	Online Course	3	0	0	3
3	P24VA001	Cyber Security	2	0	0	2
Practical						
4	P24PH251	Programming with Python	1	0	2	2
Project work						
5	P24EM252	Project / Dissertation	0	0	0	12
Total			8	0	2	22

Suggested List of Courses for Programme Elective - I

Sl.No.	Course Code	Course Name	Credits			
			L	T	P	C
1	P24PH901	Physics of Nanomaterials	3	0	0	3
2	P24PH902	Numerical Methods	3	0	0	3
3	P24PH903	LASER Physics	3	0	0	3

Suggested List of Courses for Programme Elective - II

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	P24PH904	Crystal Growth and Thin Film Physics	3	0	0	3
2	P24PH905	Machine Learning Physics	3	0	0	3
3	P24PH906	Bio Physics	3	0	0	3

Suggested List of Courses for Programme Elective - III

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	P24PH907	Solar Thermal and Photovoltaic Technology	3	0	0	3
2	P24PH908	Physics of IoT	3	0	0	3
3	P24PH909	Advanced Laser and Fibre Optic Communication	3	0	0	3

Suggested List of Courses for Programme Elective - IV

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	P24PH910	Micro Electro Mechanical Systems	3	0	0	3
2	P24PH911	Artificial Intelligence in Physics	3	0	0	3
3	P24PH912	Quantum Computation and Information	3	0	0	3

Semester wise Credit Distribution (In all Categories of Courses)

M.Sc. Physics

Sl. No.	Course Category	Sem. I	Sem. II	Sem. III	Sem. IV	Total Credits
1.	Foundation Courses	04	-	-	-	04
2.	Programme Core Courses	13	17	13	-	43
3.	Programme Elective Courses	03	03	03	03	12
4.	Online Courses	-	-	-	03	03
5.	Employability Enhancement Courses (Internship / Field Visit / Professional Practices / Project / Research / Thesis / Dissertation)	03	-	03	14	20
6.	Value Added / Value Addition Courses (IKS, Community Engagement, Research Methodology and IPR)	-	04	03	02	09
Total		23	24	22	22	91

List of Courses under each Category

Foundation Courses

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	P24PH101	Semiconductor Devices and Circuits	3	1	0	4
Total			3	1	0	4

Major (Core)

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1.	P24PH102	Mathematical Physics	3	1	0	4
2.	P24PH103	Classical Mechanics	3	1	0	4
3.	P24PH104	Condensed Matter Physics	3	0	0	3
4.	P24PH106	General Physics Laboratory	0	0	4	2
5.	P24PH151	Quantum Mechanics	3	1	0	4
6.	P24PH152	Electromagnetic Theory	3	1	0	4
7.	P24PH153	Atomic and Molecular Spectroscopy	3	1	0	4
8.	P24PH154	Analog and Digital Electronics	3	0	0	3
9.	P24PH155	Applied Electronics Laboratory	0	0	4	2
10.	P24PH301	Nuclear and Particle Physics	3	1	0	4
11.	P24PH302	Thermal and Statistical Mechanics	3	1	0	4
12.	P24PH303	Microprocessors and Microcontrollers	3	0	0	3
13.	P24PH304	Microprocessors and Microcontrollers Laboratory	0	0	4	2
Total			30	7	12	43

Value Added Courses

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1.	P24RD001	Research Methodology	3	0	0	3
2.	P24VA002	Community Engagement and Social Responsibility	1	0	2	2
3.	P24VA015	Astrophysics	3	0	0	3
4.	P24VA001	Cyber Security	2	0	0	2
Total			8	0	2	9

Employability Enhancement Courses

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	P24PH105	Data Science in Physics	3	0	0	3
2	P24PH205	Computational Physics Laboratory	0	0	2	1
3	P24PH251	Programming with Python	1	0	2	2
Total			3	0	4	6

Internship / Field Work

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	P24EM201	Internship / Field Visit	0	0	0	2
Total			0	0	0	2

Research Project / Dissertation

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	P24EM252	Project / Dissertation	0	0	0	12
Total			0	0	0	12