

Department of Physics

M.Sc. Physics Curriculum

(Applicable to the students admitted from AY: 2025 onwards)



School of Engineering and Sciences
SRM University AP, Andhra Pradesh

ABBREVIATIONS

AEC	Ability Enhancement Courses
VAC	Value Added Courses
SEC	Skill Enhancement Courses
FIC	Foundation & Interdisciplinary Courses
OE	Open Elective
RDIP	Research / Design / Industrial Practice / Project / Thesis / Internship
CE	Core Elective
CC	Core Course
SE	Stream Elective
TE	Technical Elective

SEMESTER - I							
S. No	Category	Sub- Category	Course Title	L	T/D	P/Pr	C
1	SEC	S SEC	Statistics	3	1	0	4
2	Core	CC	Mathematical Methods	2	2	0	4
3	Core	CC	Classical Mechanics	2	2	0	4
4	Core	CC	Quantum Mechanics	2	1	0	3
5	Core	CC	Electromagnetic Theory	2	1	0	3
6	Core	CC	Physics Lab 1	0	0	3	3
Semester Total				11	7	3	21

SEMESTER - II							
S. No	Category	Sub- Category	Course Title	L	T/D	P/Pr	C
1	SEC	S SEC	Introduction to R and Python	3	0	1	4
2	SEC	S SEC	Research methodology	3	0	0	3
3	Core	CC	Statistical Mechanics	2	2	0	4
4	Core	CC	Condensed Matter Physics	2	0	2	4
5	Elective	CE	Numerical Methods in Physics	3	0	0	3
6	Elective	CE	Atomic and Molecular Physics	3	0	0	3
7	Elective	CE	Nuclear and Particle Physics	3	0	0	3
Semester Total				19	2	3	24

SEMESTER - III							
S. No	Category	Sub- Category	Course Title	L	T/D	P/Pr	C
1	AEC	S AEC	Research seminar and Report writing	3	0	0	3
2	AEC	S AEC	Design thinking	2	0	0	2
3	Core	CC	Electronics	2	0	2	4
4	Elective	CE	Core Elective	3	0	0	3
5	Elective	CE	Core Elective	3	0	0	3
6	Elective	CE	Core Elective	3	0	0	3
7	RDIP	RDIP	Summer Internship	0	0	2	2
Semester Total				16	0	4	20

SEMESTER - IV							
S. No	Category	Sub- Category	Course Title	L	T/D	P/Pr	C
1	RDIP	RDIP	Thesis Project	0	0	14	14
Semester Total				0	0	14	14

Specialization: Condensed Matter (Research Track)							
S. No	Category	Sub- Category	Course Title	L	T/D	P/Pr	C
1	Elective	CE/SE	Condensed Matter Physics - II	2	1	0	3
2	Elective	CE/SE	Spintronics & Nano-magnetism – MEMS & NEMS	2	0	1	3
3	Elective	CE/SE	Soft Matter Physics	2	1	0	3

Core Electives

S. No	Category	Sub- Category	Course Title	L	T/D	P/Pr	C
1	Elective	CE/SE	Artificial Intelligence in Complex Systems.	2	1	0	3
2	Elective	CE/SE	Data Science and Statistics	2	1	0	3
3	Elective	CE/SE	Risk and Resource Management	2	1	0	3
4	Elective	CE/SE	Solid State Battery Technologies	2	0	1	3
5	Elective	CE/SE	Li-ion and beyond Li-ion Batteries	2	0	1	3
6	Elective	CE/SE	Optoelectronic Devices	2	0	1	3
7	Elective	CE/SE	Semiconductor Device Physics	2	0	1	3
8	Elective	CE/SE	Fundamentals, Technology and Applications	2	0	1	3
9	Elective	CE/SE	Lithography and Additive Manufacturing	2	0	1	3

Department Electives

S. No	Category	Sub-Category	Course Title	L	T/D	P/Pr	C
1	Elective	CE	Numerical Methods in Physics	2	1	0	3
2	Elective	CE	Atomic and Molecular Physics	2	1	0	3
3	Elective	CE	Nuclear and Particle Physics	2	1	0	3

Specialization: Astrophysics and Cosmology (Research Track)

S. No	Category	Sub-Category	Course Title	L	T/D	P/Pr	C
1	Elective	CE/SE	Introduction to Astrophysics	2	1	0	3
2	Elective	CE/SE	General Relativity and Cosmology	2	1	0	3
3	Elective	CE/SE	Standard Model of Particle Physics	2	1	0	3
4	Elective	CE/SE	Quantum Field Theory	2	1	0	3