



Scheme of Studies for BS Physics Program 2023 and onwards

Admission criteria

Intermediate or equivalent with physics having at least 45% marks from an accredited institution. Three years engineering diploma with maths and physics. No D-grade in academic career.

Session	Session (23-27) and onwards
Duration:	8-14 Semesters (4-7 Years)
Degree Title	Bachelor of Science in Physics
General Education Courses	30 Cr. Hrs.
Major Courses	76 Cr. Hrs.
Interdisciplinary/allied courses	12 Cr. Hrs.
Internship *	03 Cr. Hrs.
Capstone Project	03 Cr. Hrs.
Total	124 Cr. Hrs.

Semester-I			Semester-II		
Code	Title	Cr. Hrs.	Code	Title	Cr. Hrs.
HQT-1128	Holy Quran with Translation, Tajveed and Tafseer	01 (NC) IP	HQT-1128	Holy Quran with Translation, Tajveed and Tafseer	IP
PHY-1101	Mechanics	03	PHY-1203	Waves and Oscillations	03
ARA-1101	Arabic (Arts G1)	02	**	Social Sciences (G4)	02
MAT-1115	Calculus-I (ID-1)	03	MAT-1215	Calculus-II (ID-2)	03
ICT-1126	Applications of Information and Communication Technologies (ICT) (G2)	2+1	CHEM-1204	Introduction to Inorganic Chemistry (Natural Sc.) (G5)	2+1
ENG-1107	Functional English (G3)	03	ENG-1207	Expository Writing (G6)	03
PHY-1102	Lab-I	01	PHY-1204	Lab-II	01
MAT-0115	Basic Mathematics (Deficiency Course)	(NC)			
	Total	15		Total	15
Semester-III			Semester-IV		
Code	Title	Cr. Hrs.	Code	Title	Cr. Hrs.
HQT-1128	Holy Quran with Translation, Tajveed and Tafseer	IP	HQT-1128	Holy Quran with Translation, Tajveed and Tafseer	IP
PHY-2305	Heat and Thermodynamics	03	PHY-2408	Electricity and Magnetism	03
PHY-2306	Computational Physics	3	CCE-2425	Civics and Community Engagement (G9)	02
QTR-2324	Quantitative Reasoning-I (G7)	03	QTR-2424	Quantitative Reasoning-II (G10)	03
MAT-2315	Linear Algebra (ID-3)	03	MAT-2415	Differential Equations (ID-4)	03
ICP-2327	Ideology and Constitution of Pakistan (G8)	02	ETRE-2408	Entrepreneurship (G11)	02
PHY-2307	Lab-III	1	ISL-2412	Islamic Studies (G12)	02
			PHY-2409	Lab-IV	01
	Total	15		Total	16

Semester-V				Semester-VI		
Code	Title	Cr. Hrs.		Code	Title	Cr. Hrs.
HQT-1128	Holy Quran with Translation, Tajveed and Tafseer	IP		HQT-1128	Holy Quran with Translation, Tajveed and Tafseer	IP
PHY-3510	Classical Mechanics	3		PHY-3615	Electromagnetic Theory-II	3
PHY-3511	Electromagnetic Theory-I	3		PHY-3616	Electronics-II	3
PHY-3512	Electronics-I	3		PHY-3617	Mathematical Methods of Physics-II	3
PHY-3513	Mathematical Methods of Physics-I	3		PHY-3618	Solid State Physics-I	3
PHY-3514	Lab-V	3		PHY-3619	Lab-VI	3
	Total	15			Total	15
Semester-VII				Semester-VIII		
Code	Title	Cr. Hrs.		Code	Title	Cr. Hrs.
HQT-1128	Holy Quran with Translation, Tajveed and Tafseer	IP		HQT-1128	Holy Quran with Translation, Tajveed and Tafseer	IP
PHY-4720	Atomic Physics	3		PHY-4825	Laser Physics	3
PHY-4721	Plasma Physics	3		PHY-4826	Nuclear Physics	3
PHY-4722	Quantum Mechanics-I	3		PHY-4827	Quantum Mechanics-II	3
PHY-4723	Solid State Physics-II	3		PHY-4828	Thermal and Statistical Physics	3
PHY-4724	Capstone Project	3		PHY-4829	Lab-VII	3
	Total	15			Total	15

* Internship can be offered in any of the last four semesters.

****Social Sciences Courses**

S. No.	Code	Subject	S. No.	Code	Subject
1	ECO-0006	Economics	7	MC-0014	Mass Communications
2	HRM-0009	Human Resource Management	8	OB-0016	Organizational Behavior
3	IR-0010	International Relations	9	PSY-0019	Introduction to Psychology
4	ITM-0011	Introduction to management	10	SOC-0021	Introduction to Sociology
5	KS-0013	Kashmir Studies			

Scheme of Studies for M.Phil. Physics Program Fall 2023 and Onwards

Sessions	Session Fall 2023 and Onwards
Degree title	Master of Philosophy in Physics
Duration	4-8 Semesters (4 Years)
Course work	24 Credit Hours
Seminar (PHY-798)	01 Credit Hours
Thesis (PHY-799)	06 Credit Hours
Total:	31 Credit Hours

Semester-I

Course Title	Cr. Hrs.	Remarks
Graduate level physics course	03	Elective
Graduate level physics course	03	Elective
Graduate level physics course	03	Elective
Graduate level physics course	03	Elective
Total	12	

Semester-II

Course Title	Cr. Hrs.	Remarks
Graduate level physics course	03	Elective
Graduate level physics course	03	Elective
Graduate level physics course	03	Elective
Graduate level physics course	03	Elective
Total	12	

Scheme of Studies for Ph.D. Physics Program Fall 2023 and Onwards

Sessions	Session Fall 2023 and Onwards
Degree title	Doctor of Philosophy in Physics
Duration	6-16 Semesters (3-8 years)
Course work	18 Credit Hours
Comprehensive Examination (Written & Oral) (PHY-896)	Non Credit Pass/Fail Basis
Seminar I (PHY-897)	01 Credit Hours
Seminar II (PHY-898)	01 Credit Hours
Thesis (PHY-899)	50 Credit Hours
Total	70 Credit Hours

Semester I

Title	Cr. Hrs.	Remarks
Graduate level physics course	03	Elective I
Graduate level physics course	03	Elective II
Graduate level physics course	03	Elective III
Total	09	

Semester II

Title	Cr. Hrs.	Remarks
Graduate level physics course	03	Elective IV
Graduate level physics course	03	Elective V
Graduate level physics course	03	Elective VI
Total	09	

List of elective courses for M.Phil. and Ph.D. programs

Y = 7 for M Phil and Y = 8 for PhD course

Course Code	Course Title	Cr. Hrs.
PHY-Y01	Advanced Nuclear Physics	03
PHY-Y02	Advanced Plasma Physics	03
PHY-Y03	Advanced Quantum Mechanics	03
PHY-Y04	Applications of Nano-Technology	03
PHY-Y05	Applied Quantum Mechanics	03
PHY-Y06	Atomic and Molecular Spectroscopy	03
PHY-Y07	Classical Theory of Fields	03
PHY-Y08	Defects in Materials and Measuring Techniques	03
PHY-Y09	Dielectric Properties of Solids	03
PHY-Y10	Electrodynamics	03
PHY-Y11	Experimental Plasma Physics	03
PHY-Y12	Experimental Techniques in Particle and Nuclear Physics	03
PHY-Y13	Fluid Dynamics	03
PHY-Y14	Fundamentals of Polarized Light	03
PHY-Y15	Group Theory	03
PHY-Y16	Laser Induced Breakdown Spectroscopy (LIBS)	03
PHY-Y17	Magnetism and Magnetic Materials	03
PHY-Y18	Material Studies by Electron Emission	03
PHY-Y19	Materials Science-I	03
PHY-Y20	Materials Science-II	03
PHY-Y21	Mathematical Methods of Physics	03
PHY-Y22	Methods and Techniques of Experimental Physics-I	03
PHY-Y23	Methods and Techniques of Experimental Physics-II	03
PHY-Y24	Nano Science and Technology	03
PHY-Y25	Non-Linear Physics-I	03
PHY-Y26	Non-Linear Physics-II	03
PHY-Y27	Optoelectronics	03
PHY-Y28	Organic Semiconductor Devices	03
PHY-Y29	Particle Physics	03
PHY-Y30	Physics of Semiconductors	03
PHY-Y31	Physics of Semiconductor Devices	03
PHY-Y32	Physics of Thin Films-I	03
PHY-Y33	Physics of Thin Films-II	03
PHY-Y34	Plasma Hydrodynamics and Controlled Fusion	03
PHY-Y35	Plasma Kinetic Theory and its Applications	03
PHY-Y36	Quantum Field Theory-I	03
PHY-Y37	Quantum Field Theory-II	03
PHY-Y38	Quantum Information Theory-I	03
PHY-Y39	Quantum Information Theory-II	03
PHY-Y40	Quantum Optics-I	03

PHY-Y41	Quantum Optics-II	03
PHY-Y42	Statistical Physics	03
PHY-Y43	Surface Science and Scanning Electron Microscopy	03