

Progressive Education Society's
Modern College of Arts, Science and Commerce (Autonomous),
Shivajinagar, Pune 5

(An Autonomous College Affiliated to Savitribai Phule Pune University)

Framework of Syllabus For

B. Sc. (Physics)

Choice Based Credit System (CBCS) Syllabus Under National Education Policy (NEP)

To be implemented from Academic Year 2024-2025

Level 4.5 (First Year) Semester I

Course Type	Course Code	Course Title	Credits		Teaching Scheme Hr/Week		Evaluation Scheme and Max Marks		
			TH	PR	TH	PR	CE	ESE	Total
Subject 1 T(2)+ (T/P)(2) or T(4)	24ScPhyU1101	Mechanics and Properties of Matter	2		2		20	30	50
	24ScPhyU1102	Lab Course on General Physics I		2		4	20	30	50
Subject 2 T(2)+ (T/P)(2) or T(4)	24Sc***U1201	<<Subject 2 Theory>>	2		2		20	30	50
	24Sc***U1202	<<Subject 2 Practical>>		2		4	20	30	50
Subject 3 T(2)+ (T/P) (2) or T(4)	24Sc***U1301	<<Subject 3 Theory>>	2		2		20	30	50
	24Sc***U1302	<<Subject 3 Practical>>		2		4	20	30	50
IKS T(2)	24CpCopU1901	Generic IKS	2		2		20	30	50
GE/OE (T/P) (2)	24ScPhyU1401	Renewable Energy: Global Scenario	2		2		20	30	50
SEC (P) (2)	24ScPhyU1601	Lab Course on Basic Instrumentation Skills		2		4	20	30	50
AEC T(2)	24CpCopU1701 / 24CpCopU1702	MIL-I (Hindi) / MIL-I (Marathi)	2		2		20	30	50
VEC T (2)	24CpCopU1801	Environmental Science	2		2		20	30	50
Total			14	08	14	16			550

Level 4.5 (First Year) Semester II

Course Type	Course Code	Course Title	Credits		Teaching Scheme Hr/Week		Evaluation Scheme and Max Marks		
			TH	PR	TH	PR	CE	ESE	Total
Subject 1 T(2)+ T/P(2) Or T(4)	24ScPhyU2101	Electricity and Magnetism	2		2		20	30	50
	24ScPhyU2102	Lab Course on General Physics II		2		4	20	30	50
Subject 2 T(2) + P(2)	24Sc***U2201	<<Subject 2 Theory>>	2		2		20	30	50
	24Sc***U2202	<<Subject 2 Practical>>		2		4	20	30	50
Subject 3 T(2) + P(2)	24Sc***U2301	<<Subject 3 Theory>>	2		2		20	30	50
	24Sc***U2302	<<Subject 3 Practical>>		2		4	20	30	50
GE/OE (T/P)(2)	24ScPhyU2401	Conventional and Non-conventional energy sources	2		2		20	30	50
SEC P(2)	24ScPhyU2601	Lab Course on Computational Physics Skills I		2		4	20	30	50
AEC T(2)	24CpCopU2703	English Communication Skills I	2		2		20	30	50
VEC T(2)	24CpCopU2801	Democracy, Election and Governance	2		2		20	30	50
CC (2)	24CpCopU2001/24CpCopU2011 / 24CpCopU2021 /24CpCopU2031 / 24CpCopU2041 /24CpCopU2051 / 24CpCopU2061 /24CpCopU2071	Cultural activities NSS /NCC /Fine Arts / Applied Arts / Visual Arts / Performing Arts	2		2		20	30	50
Total			14	08	14	16			550

Level 5.0 (Second Year) Semester III

Course Type	Course Code	Course Title	Credits		Teaching Scheme Hr/Week		Evaluation Scheme and Max Marks		
			TH	PR	TH	PR	CE	EE	Total
Major Core T(2+2 or 4), (T/P)(2)	24ScPhyU3101	Oscillations and Waves	2		2		20	30	50
	24ScPhyU3102	Optics	2		2		20	30	50
	24ScPhyU3103	Lab Course on General Physics III		2		4	20	30	50
VSC P(2)	24ScPhyU3501	Lab course on Electrical Circuits and Network		2		4	20	30	50
IKS (T/P)(2)	24ScPhyU3901	Astronomy in India	2		2		20	30	50
FP P(2)	24ScPhyU3002	Field Project I		2		4	20	30	50
Minor (T/P)(2+2 or 4)	24ScPhyU3301	Introduction to Optics	2		2		20	30	50
	24ScPhyU3302	Lab Course on Minor Physics I		2		4	20	30	50
GE/OE (T/P) (2)	24ScPhyU3401	Energy Storage Systems	2		2		20	30	50
AEC T(2)	24CpCopU3703	English Communication Skills II	2		2		20	30	50
CC T(2)	24CpCopU3001	Online Course on Yoga	2		2		20	30	50
Total			14	08	14	16			550

Level 5.0 (Second Year) Semester IV

Course Type	Course Code	Course Title	Credits		Teaching Scheme Hr/Week		Evaluation Scheme and Max Marks		
			TH	PR	TH	PR	CE	EE	Total
Major Core T (2+2 or 4), (T/P) (2)	24ScPhyU4101	Heat and Thermodynamics	2		2		20	30	50
	24ScPhyU4102	Electronics I	2		2		20	30	50
	24ScPhyU4103	Lab Course on General Physics IV		2		4	20	30	50
VSC P(2)	24ScPhyU4501	Lab Course on Energy Studies		2		4	20	30	50
CEP P(2)	24CpCopU4003	Community Engagement Project		2		4	20	30	50
Minor (T/P)(2+2 or 4)	24ScPhyU4301	Introduction to Heat and Thermodynamics	2		2		20	30	50
	24ScPhyU4302	Lab Course on Minor Physics II		2		4	20	30	50
GE/OE (T/P) (2)	24ScPhyU4401	Biomass and Wind Energy	2		2		20	30	50
SEC P(2)	24ScPhyU4601	Lab Course on Computational Physics II		2		4	20	30	50
AEC T(2)	24CpCopU4701 / 24CpCopU4702	MIL-II (Hindi) / MIL-II (Marathi)	2		2		20	30	50
CC T(2)	24CpCopU4001	Health and Wellness	2		2		20	30	50
Total			12	10	12	20			550

Level 5.5 (Third Year) Semester V

Course Type	Course Code	Course Title	Credits		Teaching Scheme Hr/Week		Evaluation Scheme and Max Marks		
			TH	PR	TH	PR	CE	EE	Total
Major Core T(2+2+2+2 or 4 + 2+2 or 4 + 4) P(2+2 or 4)	24ScPhyU5101	Introduction to Mathematical Methods in Physics	2		2		20	30	50
	24ScPhyU5102	Introduction to Classical Mechanics	2		2		20	30	50
	24ScPhyU5103	Introduction to Quantum Mechanics	2		2		20	30	50
	24ScPhyU5104	Atomic and Molecular Physics	2		2		20	30	50
	24ScPhyU5105	Lab Course on General Physics V		2		4	20	30	50
	24ScPhyU5106	Lab Course on General Physics VI		2		4	20	30	50
Major Elective (T/P) (2+2 or 4)	24ScPhyU5201	Electronics and Instrumentation	2		2		20	30	50
	24ScPhyU5202	Lab Course on Elective Physics I		2		4	20	30	50
	OR								
	24ScPhyU5203	Physics of Semiconductor Devices	2		2		20	30	50
	24ScPhyU5204	Lab Course on Elective Physics II		2		4	20	30	50
VSC P(2)	24ScPhyU5501	Lab Course on Quantum Computing I		2		4	20	30	50
FP (2)	24ScPhyU5001	Field Project II		2		4	20	30	50
Minor (T/P) (2)	24ScPhyU5302	Lab Course on Minor Physics III		2		4	20	30	50
Total			10	12	10	24			550

Level 5.5 (Third Year) Semester VI

Course Type	Course Code	Course Title	Credits		Teaching Scheme Hr/Week		Evaluation Scheme and Max Marks		
			TH	PR	TH	PR	CE	EE	Total
Major Core T(2+2+2+2 or 4+2+2 or 4+4) P(2+2 or 4)	24ScPhyU6101	Introduction to Electrodynamics	2		2		20	30	50
	24ScPhyU6102	Introduction to Solid State Physics	2		2		20	30	50
	24ScPhyU6103	Nuclear Physics	2		2		20	30	50
	24ScPhyU6104	Statistical Mechanics	2		2		20	30	50
	24ScPhyU6105	Lab Course on General Physics VII		2		4	20	30	50
	24ScPhyU6106	Lab Course on General Physics VIII		2		4	20	30	50
Major Elective (T/P) (2+2 or 4)	24ScPhyU6201	Physics of Nanomaterials	2		2		20	30	50
	24ScPhyU6202	Lab Course on Elective Physics III		2		4	20	30	50
	OR								
	24ScPhyU6203	Medical and Biophysics	2		2		20	30	50
	24ScPhyU6204	Lab Course on Elective Physics IV		2		4	20	30	50
VSC P(2)	24ScPhyU6501	Lab Course on Quantum Computing II		2		4	20	30	50
OJT (2)	24CpCopU6004	On Job Training		4		8	40	60	100
Total			10	12	10	24			550