

*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) Sem: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		2	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
<b>Total</b>			14	08	14	16			550

**Level:- 4.5 (First Year) Sem: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/	Physical Education /	2		2		20	30	50

	24CpCopU2011 / 24CpCopU2021 / 24CpCopU2031 / 24CpCopU2041 / 24CpCopU2051 / 24CpCopU2061 / 24CpCopU2071	Cultural Activities / NSS / NCC / Fine Arts / Applied Arts / Visual Arts / Performing Arts							
<b>Total</b>			14	08	14	16			550

**Level:- 5.0 (Second Year) Sem: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 24ScPhyU3101 & 24ScPhyU3102		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 Oscillations, Waves and Optics	2		2		20	30	50
	24ScPhyU3302	Lab Course on 24ScPhyU3301		2		4	20	30	50
GE/OE (T/P)(2)	24ScPhyU3401	Lab Course on Energy		2		4	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
<b>Total</b>			12	10	12	20			550

**Level:- 5.0 (Second Year) Sem: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 24ScPhyU4101 & 24ScPhyU4102		2		4	20	30	50
VSC P(2)	24ScPhyU4501	Lab Course on Energy Studies		2		4	20	30	50
CEP P(2)	24ScCopU4003	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 24ScPhyU4301		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 Skills 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
<b>Total</b>			12	10	12	20			550

**Level:- 5.5 (Third Year) Sem:-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	Mathematical Methods in Physics I	2		2		20	30	50
	24ScPhyU5102	Classical Mechanics	2		2		20	30	50
	24ScPhyU5103	Quantum Mechanics I	2		2		20	30	50
	24ScPhyU5104	Atomic and Molecular Physics	2		2		20	30	50
	24ScPhyU5105	Lab Course on 24ScPhyU5101 & 24ScPhyU5102		2		4	20	30	50
	24ScPhyU5106	Lab Course on 24ScPhyU5103 & 24ScPhyU5104		2		4	20	30	50
Major Elective (T/P) (2+2 or 4)	24ScPhyU5201	Electronics Instrumentation	2		2		20	30	50
	24ScPhyU5202	Lab Course on 24ScPhyU5201		2		4	20	30	50
	24ScPhyU5203	Physics of Semiconductor Devices	2		2		20	30	50
	24ScPhyU5204	Lab Course on 24ScPhyU5204		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 Electronics		2		4	20	30	50
<b>Total</b>			10	12	10	24			550

**Level:- 5.5 (Third Year) Sem:-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)	24ScPhyU6101	Mathematical Methods in Physics II	2		2		20	30	50
	24ScPhyU6102	Solid State Physics	2		2		20	30	50
	24ScPhyU6103	Nuclear Physics	2		2		20	30	50

4+4) P(2+2 or 4)	24ScPhyU6104	Statistical Mechanics	2		2		20	30	50
	24ScPhyU6105	Lab Course on 24ScPhyU6101 & 24ScPhyU6102		2		4	20	30	50
	24ScPhyU6106	Lab Course on 24ScPhyU6103 & 24ScPhyU6104		2		4	20	30	50
Major Elective (T/P) (2+2 or 4)	24ScPhyU6201	Material Science and Physics of Nanomaterials	2		2		20	30	50
	24ScPhyU6202	Lab Course on 24ScPhyU6201		2		4	20	30	50
	24ScPhyU6203	Medical and Biophysics	2		2		20	30	50
	24ScPhyU6204	Lab Course on 24ScPhyU6203		2		4	20	30	50
VSC P(2)	24ScPhyU6501	Lab Course on Quantum Computing II		2		4	20	30	50
OJT (2)	24ScPhyU6004	<a href="#">On Job Training</a>		4		8	40	60	100
<b>Total</b>			10	12	10	24			550