

*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 for

**B. Sc. (Computer Science)**

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)	24CsCmpU1101	Programming in 'C'	2		2		20	30	50
	24CsCmpU1102	Lab Course on 24CsCmpU1101		2		4	20	30	50
Subject 2 T(2) + (T/P) (2) or T(4)	24CsMatU1201	Discrete Mathematics	2		2		20	30	50
	24CsMatU1202	Lab Course on 24CsMatU1201		2		4	20	30	50
Subject 3 T(2) + (T/P) (2) or T(4)	24CsEleU1301	Basics of Electronics Components and Circuits	2		2		20	30	50
	24CsEleU1302	Lab course on 24CsEleU1301		2		4	20	30	50
IKS T(2)	24CpCopU1901	Generic IKS	2		2		20	30	50
GE/OE (T/P) (2)	24CsCopU1401	Computer Fundamentals	2		2		20	30	50
SEC (P) (2)	24CsStaU1601	Lab Course on Statistical Analysis using R Programming I		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
<b>Total</b>			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)	24CsCmpU2101	Advanced 'C' Programming	2		2		20	30	50
	24CsCmpU2102	Lab Course on 24CsCmpU2101		2		4	20	30	50
Subject 2 T(2) + P(2)	24CsMatU2201	Matrix Theory	2		2		20	30	50
	24CsMatU2202	Lab Course on 24CsMatU2201		2		4	20	30	50
Subject 3 T(2) + P(2)	24CsEleU2301	Basics of Electronic Instrumentation	2		2		20	30	50
	24CsEleU2302	Lab course on 24CsEleU2301		2		4	20	30	50
GE/OE (T/P) (2)	24CsCopU2401	Digital Marketing	2		2		20	30	50
SEC P(2)	24CsStaU2601	Lab Course on Statistical Analysis using R Programming II		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	Physical Education /Cultural Activities /NSS /NCC /Fine Arts /Applied Arts /Visual Arts Performing Arts	2		2		20	30	50
<b>Total</b>			<b>14</b>	<b>08</b>	<b>14</b>	<b>16</b>			<b>550</b>

## 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	ESE	Total
Major Core T(2+2 or 4), (T/P) (2)	24CsCmpU3101	Data Structures	2		2		20	30	50
	24CsCmpU3102	Database Management System	2		2		20	30	50
Subject 2 T(2) + (T/P) (2) or T(4)	24CsCmpU3103	Lab Course on 24CsCmpU3101 and 24CsCmpU3102		2		4	20	30	50
VSC P(2)	24CsCmpU3501	Lab Course on Scripting Languages		2		4	20	30	50
IKS (T/P)(2)	24CsCmpU3901	Vedic Maths and Computer Fundamentals	2		2		20	30	50
FP P(2)	<a href="#">24CsCmpU3002</a>	<a href="#">Field Project I</a>		2		4	20	30	50
Minor (T/P) (2+2 or 4)	24CsMatU3301 / 24CsEleU3301	Intel 8051 and Raspberry Pi/ Advanced Discrete Mathematics	2		2		20	30	50
GE/OE (T/P) (2)	24CsMatU3302/ 24CsEleU3302	Lab course on 24CsMatU3301 / Lab course on 24CsEleU3301		2		4	20	30	50
GE/OE (T/P) (2)	24CsCopU3401	Cyber Security	2		2		20	30	50
AEC T(2)	<a href="#">24CpCopU3703</a>	<a href="#">English Communication Skills II</a>	2		2		20	30	50
CC T(2)	<a href="#">24CpCopU3001</a>	<a href="#">Online Course on Yoga</a>	2		2		20	30	50
<b>Total</b>			<b>14</b>	<b>8</b>	<b>14</b>	<b>16</b>			<b>550</b>

## 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	ESE	Total
Major Core T(2+2 or 4), (T/P)(2)	24CsCmpU4101	Advanced Data Structures	2		2		20	30	50
	24CsCmpU4102	Advanced Database Management System	2		2		20	30	50
Subject 2 T(2) + (T/P) (2) or T(4)	24CsCmpU4103	Lab Course on 24CsCmpU4101 and 24CsCmpU4102		2		4	20	30	50
VSC P(2)	24CsCmpU4501	Lab Course on OOP using C++		2		4	20	30	50
CEP P(2)	24CsCmpU4003	Community Engagement Project		2		4	20	30	50
Minor (T/P) (2+2 or 4)	24CsMatU4301 / 24CsEleU4301	Analog and Advanced Digital Communication/ Groups and Coding Theory	2		2		20	30	50
	24CsMatU4302 / 24CsEleU4302	Lab course on 24CsMatU4301 / Lab course on 24CsEleU4301		2		4	20	30	50
GE/OE (T/P) (2)	24CsCopU4401	Web Designing	2		2		20	30	50
SEC T(2)	24CsStaU4601	Data Mining	2		2		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>			<b>14</b>	<b>08</b>	<b>14</b>	<b>16</b>			<b>550</b>

## 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	CIE	ESE	Total
Major Core T(2+2+2+2 or 4 + 2+2 or 4 + 4) P(2+2 or 4)	24CsCmpU5101	System Programming	2		2		20	30	50
	24CsCmpU5102	Programming in Core Java	2		2		20	30	50
	24CsCmpU5103	Object Oriented Software Engineering	2		2		20	30	50
	24CsCmpU5104	Theory of Computer Science	2		2		20	30	50
	24CsCmpU5105	Lab Course on 24CsCmpU5101		2		4	20	30	50
	24CsCmpU5106	Lab Course on 24CsCmpU5102		2		4	20	30	50
Major Elective (T/P) (2+2 or 4)	24CsCmpU5201	Android Programming	2		2		20	30	50
	24CsCmpU5202	Lab Course on 24CsCmpU5201		2		4	20	30	50
	<b>OR</b>								
	24CsCmpU5203	Software Testing	2		2		20	30	50
	24CsCmpU5204	Lab Course on 24CsCmpU5203		2		4	20	30	50
	<b>OR</b>								
	24CsMatU5205	Numerical Methods	2		2		20	30	50
	24CsMatU5206	Lab Course on 24CsMatU5205		2		4	20	30	50
<b>OR</b>									

	24CsEleU5207	Embedded System	2		2		20	30	50
	24CsEleU5208	Lab course on 24CsEleU5207		2		4	20	30	50
VSC P(2)	24CsCmpU5501	Lab Course on Web Technology		2		4	20	30	50
FP (2)	24CsCmpU5001	Field Project II		2		4	20	30	50
Minor (T/P) (2)	24CsMatU5301	Lab course on Operations Research		2		4	20	30	50
	OR								
	24CsEleU5302	Lab Course on Embedded System and IoT		2		4	20	30	50
<b>Total</b>			<b>10</b>	<b>12</b>	<b>10</b>	<b>24</b>			<b>550</b>

## 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	CIE	ESE	Total
Major Core T(2+2+2+2 or 4+2+2 or 4+4) P(2+2 or 4)	24CsCmpU6101	Operating System Concepts	2		2		20	30	50
	24CsCmpU6102	Programming in Advanced Java	2		2		20	30	50
	24CsCmpU6103	Computer Networks	2		2		20	30	50
	24CsCmpU6104	Foundation of Data Science	2		2		20	30	50
	24CsCmpU6105	Lab Course on 24CsCmpU6101		2		4	20	30	50
	24CsCmpU6106	Lab Course on 24CsCmpU6102		2		4	20	30	50
Major Elective (T/P) (2+2 or 4)	24CsCmpU6201	Big Data Analytics	2		2		20	30	50
	24CsCmpU6202	Lab Course on 24CsCmpU6201		2		4	20	30	50
	OR								
	24CsCmpU6203	C# DOT NET	2		2		20	30	50
	24CsCmpU6204	Lab Course on 24CsCmpU6203		2		4	20	30	50
	OR								
	24CsMatU6205	Computational Geometry	2		2		20	30	50
	24CsMatU6206	Lab Course on 24CsMatU6205		2		4	20	30	50

	OR								
	24CsEleU6207	Wireless Sensor Network and IOT	2		2		20	30	50
	24CsEleU6208	Lab course on 24CsEleU6207		2		4	20	30	50
VSC P(2)	24CsCmpU6501	Python Programming		2		4	20	30	50
OJT (2)	24CsCmpU6004	<a href="#">On Job Training</a>		4		8	40	60	100
<b>Total</b>			<b>10</b>	<b>12</b>	<b>10</b>	<b>24</b>			<b>550</b>