

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. (Data Science)

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

To be implemented from Academic Year 2025-2026

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)	24CsDScU1101	Problem Solving and Python Programming	2		2		20	30	50
	24CsDScU1102	Lab Course on 24CsDScU1101		2		4	20	30	50
Subject 2 T(2)+ (T/P) (2) or T(4)	24CsDScU1201	Descriptive Statistics	2		2		20	30	50
	24CsDScU1202	Lab Course on 24CsDScU1201		2		4	20	30	50
Subject 3 T(2)+ (T/P)(2) or T(4)	24CsDScU1301	Computational Mathematics	2		2		20	30	50
	24CsDScU1302	Lab Course on 24CsDScU1301		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)	24CsDScU1601	Software Engineering	2		2		20	30	50
AEC T(2)	24CpCopU1701 / 24CpCopU1702	MIL-I (Hindi) / MIL-I (Marathi)	2		2		20	30	50
VECT (2)	24CpCopU1801	Environmental Science	2		2		20	30	50
Total			16	06	16	12			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)	24CsDScU2101	Advanced Python Programming	2		2		20	30	50
	24CsDScU2102	Lab Course on 24CsDScU2101		2		4	20	30	50
Subject 2 T (2) + T/P (2) or T (4)	24CsDScU2201	Discrete Probability and Probability Distributions	2		2		20	30	50
	24CsDScU2202	Lab Course on 24CsDScU2201		2		4	20	30	50
Subject 3 T (2) + T/P (2) or T (4)	24CsDScU2301	Graph Theory	2		2		20	30	50
	24CsDScU2302	Lab Course on 24CsDScU2301		2		4	20	30	50
GE/OE (T/P) (2)	24CsCopU2401	Digital Marketing	2		2		20	30	50
SEC T (2)	24CsStaU2601	Lab course on Excel		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
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	ESE	Total
Major Core T(2+2 or 4), (T/P)(2)	24CsDScU3101	Database Concepts	2		2		20	30	50
	24CsDScU3102	Web Technologies	2		2		20	30	50
	24CsDScU3103	Lab Course on 24CsDScU3101 and 24CsDScU3102		2		4	20	30	50
VSC P(2)	24CsDScU3501	Foundation of Data Science	2		2		20	30	50
IKS (T/P)(2)	24CsDScU3901	Vedic Maths and Computer Fundamentals	2		2		20	30	50
FP P(2)	24CsDScU3002	Field Project I		2		4	20	30	50
Minor (T/P) (2+2 or 4)	24CsDScU3301	Project Management I (Object Oriented Software Engineering)	2		2		20	30	50
	24CsDScU3302	Project Management II (Lab Course on Programming in 'C')		2		4	20	30	50
GE/OE (T/P) (2)	24CsDScU3401	Cyber Security	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			16	06	16	12			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	ESE	Total
Major Core T (2+2 or 4), (T/P) (2)	24CsDScU4101	Advanced Database Concepts	2		2		20	30	50
	24CsDScU4102	Data Structure	2		2		20	30	50
	24CsDScU4103	Lab course on 24CsDScU4101 and 24CsDScU4102		2		4	20	30	50
VSC P (2)	24CsDScU4501	Data Mining	2		2		20	30	50
CEP P (2)	24CsCopU4003	Community Engagement Project		2		4	20	30	50
Minor (T/P) (2+2 or 4)	24CsDScU4301	Project Management III (Software Project Management)	2		2		20	30	50
	24CsDScU4302	Project Management IV (Lab on Power BI)		2		4	20	30	50
GE/OE (T/P) (2)	24CsDScU4401	Web Designing	2		2		20	30	50
SEC T (2)	24CsDScU4601	Big Data Analytics	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
Total			16	06	16	12			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	ESE	Total
Major Core T(2+2+2+2or 4 + 2+2 or 4 + 4) P(2+2 or 4)	24CsDScU5101	NoSQL databases	2		2		20	30	50
	24CsDScU5102	Fundamentals of Block Chain Technology	2		2		20	30	50
	24CsDScU5103	Foundation of Artificial Intelligence	2		2		20	30	50
	24CsDScU5104	Lab Course on 24CsDScU5101		2		4	20	30	50
	24CsDScU5105	Lab Course on R Programming and 24CsDScU5103		4		8	40	60	100
Major Elective (T/P) (2+2 or 4)	24CsDScU5201	Business Analytics	2		2		20	30	50
	24CsDScU5202	Lab Course on 24CsDScU5201		2		4	20	30	50
	OR								
	24CsDScU5203	Social Media Analytics	2		2		20	30	50
	24CsDScU5204	Lab Course on 24CsDScU5203		2		4	20	30	50
VSC P(2)	24CsDScU5501	Lab Course on MATLAB		2		4	20	30	50
FP (2)	24CsDScU5001	Field Project II		2		4	20	30	50
Minor (T/P) (2)	24CsDScU5302	Project Management-V (Software Testing)	2		2		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	ESE	Total
Major Core T (2+2+2+2) or (4+2+2 or 4+4) P (2+2 or 4)	24CsDScU6101	Data Visualization and Modelling	2		2		20	30	50
	24CsDScU6102	Artificial Intelligence in Data Science	2		2		20	30	50
	24CsDScU6103	Data Security and Privacy	2		2		20	30	50
	24CsDScU6104	Machine Learning	2		2		20	30	50
	24CsDScU6105	Lab Course on Data Visualization and Modeling		2		4	20	30	50
	24CsDScU6106	Lab Course on 24CsDScU6102 and 24CsDScU6104		2		4	20	30	50
Major Elective (T/P) (2+2 or 4)	24CsDScU6201	HR Analytics	2		2		20	30	50
	24CsDScU6202	Lab Course on 24CsDScU6201		2		4	20	30	50
	OR								
	24CsDScU6203	Financial Analytics	2		2		20	30	50
	24CsDScU6204	Lab Corse on 24CsDScU6203		2		4	20	30	50
VSC P (2)	24CsDScU6501	Lab on Cloud Computing		2		4	20	30	50
OJT (2)	24CsDScU6004	On Job Training		4		8	40	60	100
Total			10	12	10	24			550