

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.C.A. (Science)

(Based on NEP 2020 framework)
(To be implemented from 2023-24)

Semester 1 (First Year)

Course Type	Course	Code	Course / Paper Title	Hours / Week	Credit	CIA	ESE	Total
Major Mandatory (4 + 2)	Major Paper 1 (Theory + Practical)	23CsBcaU1101	Programming in 'c' (T + P)	2	4	40	60	100
				4				
	Major Paper 2 (Theory)	23CsBcaU1102	Mathematical Foundation	2	2	20	30	50
Major Electives	-							
Minor	-							
OE (2 + 2)	Theory	23CsCopU1401	Computer Fundamentals	2	4	40	60	100
	Theory	23CsCopU1402	Democracy, Election and Governance	2				
VSC (2)	Major Specific Practical I	23CsBcaU1501	Lab on Scripting Language	4	2	20	30	50
SEC (2)	Skill Paper 1 (Practical)	23CsBcaU1601	Lab on Statistical Methods	4	2	20	30	50
AEC(2),	Theory	23CpCopU1701 / 23CpCopU1702	MIL-I (Hindi) / MIL-I (Marathi)	2	2	20	30	50
VEC (2)	EVS Theory	23CpCopU1801	Environmental Science I	2	2	20	30	50
IKS (2)	Major Specific Theory	23CsCopU1901	Vedic Maths and Computer Fundamentals	2	2	20	30	50
CC (2)	CC-I Course	23CpCopU1001	Online Course Based on Yoga	2	2	20	30	50
Total				28	22	220	330	550

Semester 2 (First Year)

Course Type	Course	Code	Course / Paper Title	Hours / Week	Credit	CIA	ESE	Total
Major Mandatory (4 + 2)	Major Paper 3 (Theory) Section 1	23CsBcaU2101	Advanced Programming in 'C' & Database Concepts	2	4	40	60	100
	Major Paper 3 (Theory) Section 2			2				
	Major Paper 4 (Practical)	23CsBcaU2102	Lab on 23CsBcaU2101	4	2	20	30	50
Major Electives	-							
Minor	Minor Paper I (Theory)	23CsBcaU2301	Project Management - I (SE Practices)	2	2	20	30	50
OE (2 + 2)	Theory	23CsCopU2401	Digital Marketing	2	4	40	60	100
		23CsCopU2402	Fundamentals of Music	2				
VSC (2)	Major Specific Practical II	23CsBcaU2501	Mathematical Foundation	4	2	20	30	50
SEC (2)	Skill Paper II (Theory)	23CsBcaU2601	Computer Organization	4	2	20	30	50
AEC(2)	English Theory	23CpCopU2703	English Communication Skills I	2	2	20	30	50
VEC (2)	EVS Theory	23CpCopU2801	Environmental Science II	2	2	20	30	50
IKS (2)								
CC (2)	CC-II Course	23CpCopU2001 / 23CpCopU2011 / 23CpCopU2021 / 23CpCopU2031 / 23CpCopU2041 / 23CpCopU2051 / 23CpCopU2061 / 23CpCopU2071	Physical Education / Cultural Activities / NSS / NCC / Fine Arts / Applied Arts / Visual Arts / Performing Arts	2	2	20	30	50
Total				28	22	220	330	550

Semester 3 (Second Year)

Course Type	Course	Code	Course / Paper Title	Hours / Week	Credit	CIA	ESE	Total
Major Mandatory (4 + 4)	Major Core Paper 5 (Theory + Practical)	23CsBcaU3101	Data Structure (T + P)	2	4	40		
				4			60	100
	Major Paper 6 (Theory)	23CsBcaU3102	Operating System Concepts	4	4	40	60	100
Major Electives	-							
Minor (4)	Minor Paper II	23CsBcaU3301	Object Oriented Software Engineering	4	4	40	60	100
OE (2)	Theory	23CsCopU3401	Cyber Security	2	2	20	30	50
VSC (2)	Major Specific Practical II	23CsBcaU3501	Lab Course on Advanced Database Concepts	4	2	20	30	50
SEC (2)	--		--	--	--	--	--	--
AEC(2)	English Theory	23CpCopU3703	English Communication Skills II	2	2	20	30	50
VEC (2)				--	--	--	--	--
IKS (2)	--		--	--	--	--	--	--
FP/CEP (2)	FP –I	23CpBcaU3002	Field Project I	4	2	20	30	50
CC(2)	CC-III	23CpCopU3001	Fitness	2	2	20	30	50
Total				28	22	220	330	550

Semester 4 (Second Year)

Course Type	Course	Code	Course / Paper Title	Hours / Week	Credit	CIA	ESE	Total
Major Mandatory (4 + 4)	Major Paper 7 (Theory + Practical)	23CsBcaU4101	Object Oriented Programming using C++ (T + P)	2	4	40	60	100
				4				
	Major Paper 8 (Theory)	23CsBcaU4102	Computer Network and Cyber Security	4	4	40	60	100
Major Electives	-							
Minor (4)	Minor Paper III	23CsBcaU4301	Software Testing	4	4	40	60	100
OE (2)	Theory	23CsCopU4401	Web Designing	2	2	20	30	50
VSC (2)	--		--	--	--	--	--	--
SEC (2)	Skill Paper III (Practical)	23CsBcaU4601	Lab Course on Web Technology-I	4	2	20	30	50
AEC(2),	Theory	23CpCopU4701 / 23CpCopU4702	MIL-II (Hindi) / MIL-II (Marathi)	2	2	20	30	50
VEC (2)	--		--	--	--	--	--	--
IKS (2)	--		--	--	--	--	--	--
FP / CEP(2)	CEP –I	23CsBcaU4003	Community Engagement Project	4	2	20	30	50
CC(2)	CC-IV Course	23CpCopU4001						
Total				26	22	220	330	550

Semester 5 (Third Year)

Course Type	Course	Code	Course / Paper Title	Hours / Week	Credit	CIA	ESE	Total
Major Mandatory (4 + 4 + 2)	Major Core Paper 9 (Theory + Practical)	23CsBcaU5101	Programming in 'Java' (T +P)	2	4	40	60	100
				4				
	Major Paper 10 (Theory + Practical)	23CsBcaU5102	Web Technologies-II (T + P)	2	4	40	60	100
				4				
	Major Paper 11 (Theory)	23CsBcaU5103	Data Analytics	2	2	20	30	50
Major Electives	Elective I	23CsBcaU5201	Action Script	4	4	40	60	100
	Elective I	23CsBcaU5202	Data Mining and Data Warehousing	4	4	40	60	100
Minor (4)	Minor Paper IV	23CsBcaU5301	Software Project Management	4	4	40	60	100
OE (2 + 2)	--		--	--	--	--	--	--
VSC (2)	Major Specific Practical III	23CsBcaU5501	Lab Course on Python programming	4	2	20	30	50
SEC (2)	--		--	--	--	--	--	--
AEC(2),	--		--	--	--	--	--	--
VEC (2)	--		--	--	--	--	--	--
IKS (2)	--		--	--	--	--	--	--
FP / CEP(2)	FP –II	23CsBcaU5002	Field Project II	4	2	20	30	50
Total				30	22	220	330	550

Semester 6 (Third Year)

Course Type	Course	Code	Course / Paper Title	Hours / Week	Credit	CIA	ESE	Total
Major Mandatory (4 + 4 + 2)	Major Paper 12 (Theory + Practical)	23CsBcaU6101	Advance Programming in 'Java' (T + P)	2	4	40	60	100
				4				
	Major Paper 13 (Theory + Practical)	23CsBcaU6102	Android App Development (T + P)	2	4	40	60	100
				4				
	Major Paper 14 (Practical)	23CsBcaU6103	Lab Course on Dot Net	4	2	20	30	50
	Major Electives	Elective II (Theory + Practical)	23CsBcaU6201	Internet of Things (IoT) (T +P)	2	4	40	60
			4					
Elective II		23CsBcaU6202	Cloud Computing	4	4	40	60	100
Minor (4)	Minor Paper IV	23CsBcaU6301	Digital Marketing	4	4	40	60	100
OE (2 + 2)	--		--	--	--	--	--	--
VSC (2)	--		--	--	--	--	--	--
SEC (2)	--		--	--	--	--	--	--
AEC(2),	--		--	--	--	--	--	--
VEC (2)	--		--	--	--	--	--	--
OJT (4)	OJT	23CsBcaU6004	On job Training/Project	8	4	40	60	100
FP / CEP(2)	--		--	--	--	--	--	--
Total				32	22	220	330	550

OE : Open Elective

AEC: Ability Enhancement Course

VEC: value Education Courses

CC : Co-Curricular Courses

IKS : Indian Knowledge System

OJT : On Job Training

FP : Field Project

VSC : Vocational Skill Courses

CEP : Community Engagement Project