

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 . (Mathematics)

(Based on NEP 2020 framework)

(To be implemented from the Academic Year 2023-24)

Semester 1 (First Year)

Course Type	Course	Course Code	Course / Paper Title	Hours / Week	Credit	CIA	ESE	Total
Major Mandatory (4 + 2)	Major Paper 1 (Theory)	23ScMatU1101	Algebra	2	4	40	60	100
	Major Paper 2 (Practical)	23ScMatU1102	Lab Course on 23ScMat1101	4	2	20	30	50
Major Electives	-							
Minor	-							
OE (2 + 2)	Theory	23ScMatU1401	Fundamentals of Mathematics	2	4	40	60	100
		23CoCopU1402	Democracy, Election and Governance	2				
VSC (2)	Major Specific Practical I	23ScMatU1501	Lab course on Logic	4	2	20	30	50
SEC (2)	Skill Paper 1 (Practical)	23ScMatU1601	Lab Course on Analytical Geometry	4	2	20	30	50
AEC(2),	MIL Theory	23CpCopU1701 / 23CpCopU1702	MIL-I (Hindi) / MIL-I (Marathi)	2	2	20	30	50
VEC (2)	EVS Theory	23CoCopU1801	Environment Science I	2	2	20	30	50
IKS (2)	Major Specific Theory	23ScMatU1901	Ancient Indian Mathematics	2	2	20	30	50
CC (2)	CC-I Course	23CoCopU1001	Online Course Based on Yoga	2	2	20	30	50
Total				26	22	220	330	550

Semester 2 (First Year)

Course Type	Course	Course Code	Course / Paper Title	Hours / Week	Credit	CIA	ESE	Total
Major Mandatory (4 + 2)	Major Paper 3 (Theory)	23ScMatU2101	Calculus	4	4	40	60	100
	Major Paper 4 (Practical)	23ScMatU2102	Lab Course on 23ScMat2101	4	2	20	30	50
Major Electives	-							
Minor	Minor Paper I (Practical)	23ScMatU2301	Lab Course On Linear Algebra	4	2	20	30	50
OE (2 + 2)	Theory	23ScMatU2401	Business Mathematics	2	4	40	60	100
		23CoCopU2402	Fundamentals of Music	2				
VSC (2)	Major Specific Practical II	23ScMatU2501	Lab Course on Discrete Mathematics	4	2	20	30	50
SEC (2)	Skill Paper II (Practical)	23ScMatU2601	Lab Course on Computational Geometry	4	2	20	30	50
AEC(2),	Theory	23CoCopU2703	English Communication Skills I	2	2	20	30	50
VEC (2)	EVS Theory	23CoCopU2801	Environment 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				30	22	220	330	550

Semester 3 (Second Year)

Course Type	Course	Course Code	Course / Paper Title	Hours / Week	Credit	CIA	ESE	Total
Major Mandatory (4 + 4)	Major Core Paper 5 (Theory)	23ScMatU3101	Multivariate Calculus	4	4	40	60	100
	Major Paper 6 (Practical)	23ScMatU3102	Lab Course on 23ScMat3101	4 4	4	40	60	100
Major Electives	-							
Minor (4)	Minor Paper II (Theory + Practical)	23ScMatU3301	Discrete Mathematics (T + P)	2	4	40	60	100
				4				
OE (2)	Theory	23ScMatU3401	Financial Mathematics	2	2	20	30	50
VSC (2)	Major Specific Practical III	23ScMatU3501	Lab Course on Computer Oriented Numerical Methods	4	2	20	30	50
SEC (2)	--		--	--	--	--	--	--
AEC(2),	Theory	23CoCopU3703	English Communication Skills II	2	2	20	30	50
VEC (2)	--		--	--	--	--	--	--
IKS (2)	--		--	--	--	--	--	--
FP/CEP (2)	FP –I	23ScMatU3002	Field Project - I	4	2	20	30	50
CC(2)	CC III	23CoCopU3001	Fitness	2	2	20	30	50
Total				28	22	220	330	550

Semester 4 (Second Year)

Course Type	Course	Course Code	Course / Paper Title	Hours / Week	Credit	CIA	ESE	Total
Major Mandatory (4 + 4)	Major Core Paper 7 (Theory)	23ScMatU4101	Linear Algebra	4	4	40	60	100
	Major Paper 8 (Practical)	23ScMatU4102	Lab Course on 23ScMat4101	4	4	40	60	100
Major Electives	-							
Minor (4)	Minor Paper III (Theory) + Practical)	23ScMatU4301	Elementary Calculus (T + P)	2	4	40	60	100
				4				
OE (2)	Theory	23ScMatU4401	Basics of Operations Research	2	2	20	30	50

VSC (2)	--		--	--	--	--	--	--
SEC (2)	Skill Paper III (Practical)	23ScMatU4601	Lab Course on Vector Calculus	4	2	20	30	50
AEC(2),	Theory	23CoCopU4701/ 23CoCopU4702	MIL-II (Hindi) / MIL-II (Marathi)	2	2	20	30	50
VEC (2)	--		--	--	--	--	--	--
IKS (2)	--		--	--	--	--	--	--
FP / CEP(2)	CEP –I	23ScMatU4003	Community Engagement Project	4	2	20	30	50
CC(2)	CC-4	23CoCopU4001	Health and Wellness	2	2	20	30	50
Total				28	22	220	330	550

Semester 5 (Third Year)

Course Type	Course	Course Code	Course / Paper Title	Hours / Week	Credit	CIA	ESE	Total
Major Mandatory (4 + 4 + 2)	Major Core Paper 9 (Theory)	23ScMatU5101	Real Analysis	4	4	40	60	100
	Major Paper 10 (Theory)	23ScMatU5102	Abstract Algebra	4	4	40	60	100
	Major Paper 11 (Practical)	23ScMatU5103	Lab Course on 23ScMat5101 & 23ScMat5102	4	2	20	30	50
Major Electives	Elective I (Theory + Practical)	23ScMatU5201	Operations Research (T + P)	2 4	4	40	60	100
	Elective II (Theory + Practical)	23ScMatU5202	Metric Spaces (T + P)	2 4	4	40	60	100
Minor (4)	Minor Paper IV (Theory + Practical)	23ScMatU5301	Ordinary Differential Equations (T + P)	2 4	4	40	60	100
OE (2)	--		--	--	--	--	--	--
VSC (2)	Major Specific Practical IV	23ScMatU5501	Lab Course on Latex	4	2	20	30	50
SEC (2)	--		--	--	--	--	--	--
AEC(2),	--		--	--	--	--	--	--
VEC (2)	--		--	--	--	--	--	--
IKS (2)	--		--	--	--	--	--	--
FP / CEP(2)	FP –II	23ScMatU5002	Field Project - II	4	2	20	30	50

Total				32	22	220	330	550
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Semester 6 (Third Year)

Course Type	Course	Course Code	Course / Paper Title	Hours / Week	Credit	CIA	ESE	Total
Major Mandatory (4 + 4 + 2)	Major Core Paper 12 (Theory)	23ScMatU6101	Complex Analysis	4	4	40	60	100
	Major Paper 13 (Theory)	23ScMatU6102	Differential Equations	4	4	40	60	100
	Major Paper 14 (Practical)	23ScMatU6103	Lab Course on 23ScMat6101 & 23ScMat6102	4	2	20	30	50
Major Electives	Elective III (Theory + Practical)	23ScMatU6201	Number Theory (T + P)	2	4	40	60	100
				4				
	Elective IV (Theory + Practical)	23ScMatU6202	Laplace Transforms and Fourier Series (T + P)	2	4	40	60	100
				4				
Minor (4)	Minor Paper V (Theory + Practical)	23ScMatU6301	Numerical Methods and its applications (T + P)	2	4	40	60	100
				4				
OE (2)	--		--	--	--	--	--	--
VSC (2)	--		--	--	--	--	--	--
SEC (2)	--		--	--	--	--	--	--
AEC(2),	--		--	--	--	--	--	--
VEC (2)	--		--	--	--	--	--	--
IKS (2)	--		--	--	--	--	--	--
FP / CEP(2)	--		--	--	--	--	--	--
OJT(4)	OJT	23ScMatU6004	On Job Training	8	4	40	60	100
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