

Progressive Education Society's
Modern College of Arts, Science and Commerce (Autonomous),
Shivajinagar, Pune -05

(An Autonomous College Affiliated to Savitribai Phule Pune University)

Framework of Syllabus

For

M.Sc. (Analytical Chemistry)

(Based on NEP 2020 framework)

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

Semester 1 (First Year)

Course Type	Code	Course	Course / Paper Title	Hours / Week	Credit	CIA	ESE	Total
Major Mandatory (4 + 4+4+2)	23ScCheP111	Major Paper 1 (Theory)	Fundamentals of Physical Chemistry I	4	4	50	50	100
	23ScCheP112	Major Paper 2 (Theory)	Molecular Symmetry and Main group Chemistry	4	4	50	50	100
	23ScCheP113	Major Paper 3 (Practical)	Lab Course on 23ScCheP111 & 23ScCheP112	4	4	50	50	100
	23ScCheP114	Major Paper 4 (Theory)	Basic Organic Chemistry	4	2	25	25	50
Major Electives (4)	23ScCheP121	Major Elective (T+P)	Organic Reactions (T + P)	6	4	50	50	100
Major Electives (4)	23ScCheP122	Major Elective (T+P)	Analytical Methods (T + P)	6	4	50	50	100
RM (4)	23ScCheP131	RM Section 1	Research Methodology Basics & Research in Chemistry	2	4	50	50	100
		RM Section 2		2				
OJT(4)		–	–	–	–	–	–	–
Total				26	22	275	275	550

Semester 2 (First Year)

Course Type	Code	Course	Course / Paper Title	Hours / Week	Credit	CIA	ESE	Total
Major Mandatory (4 + 4+4+2)	23ScCheP211	Major Paper 1 (Theory)	Molecular Spectroscopy and Nuclear Chemistry	4	4	50	50	100
	23ScCheP212	Major Paper 2 (Theory)	Coordination and Bioinorganic Chemistry	4	4	50	50	100
	23ScCheP213	Major Paper 3 (Practical)	Lab Course on 23ScCheP211 & 23ScCheP212	4	4	50	50	100
	23ScCheP214	Major Paper 4 (Theory)	Organic Spectroscopy	4	2	25	25	50
Major Electives (4)	23ScCheP221	Major Elective (T+P)	Synthetic Organic Chemistry (T + P)	6	4	50	50	100
Major Electives (4)	23ScCheP222	Major Elective (T+P)	Analytical Chemistry (T + P)	6	4	50	50	100
RM (4)	-	–	–	–	–	–	–	–
	-	–	–	–				
OJT(4)	23ScCheP241	OJT	On Job Training	8	4	50	50	100
Total				30	22	275	275	550

Semester 3 (Second Year)

Course Type	Code	Course	Course / Paper Title	Hours / Week	Credit	CIA	ESE	Total
Major Mandatory (4 + 4+4+2)	23ScCheP311	Major Paper 1 (Theory)	Advanced Analytical Electrochemical Methods	4	4	50	50	100
	23ScCheP312	Major Paper 2 (Theory)	Introduction to Advanced Sophisticated Analytical Techniques	4	4	50	50	100
	23ScCheP313	Major Paper 3 (Practical)	Lab Course on Analytical Chemistry I	4	4	50	50	100
	23ScCheP314	Major Paper 4 (Theory)	Photochemistry, Free radicals and Pericyclic Reactions	4	2	25	25	50
Major Electives (4)	23ScCheP321	Major Elective (T+P)	Pharmaceutical Analysis (T + P)	6	4	50	50	100
Major Electives (4)	23ScCheP322	Major Elective (T+P)	Geochemical & Alloy analysis (T + P)	6	4	50	50	100
RP (4)	23ScCheP351	RP	Research Project	8	4	50	50	100
OJT(4)	-	-	-	-	-	-	-	-
Total				30	22	275	275	550

Semester 4 (Second Year)

Course Type	Code	Course	Course / Paper Title	Hours / Week	Credit	CIA	ESE	Total
Major Mandatory (4 + 4+4+2)	23ScCheP411	Major Paper 1 (Theory)	Analytical Spectroscopy	4	4	50	50	100
	23ScCheP412	Major Paper 2 (Theory)	Industrial Chemicals, Characterization of Functional Polymers and Solid Catalyst	4	4	50	50	100
	23ScCheP413	Major Paper 3 (Practical)	Lab Course on Analytical Chemistry II	4	4	50	50	100
Major Electives (4)	23ScCheP421	Major Elective (T+P)	Analytical Toxicology & Food Analysis (T + P)	6	4	50	50	100
Major Electives (4)	23ScCheP422	Major Elective (T+P)	Safety in Chemical Laboratory (T + P)	6	4	50	50	100
RP (4)	23ScCheP451	RP	Research Project	12	6	75	75	150
OJT(4)	-	-	-	-	-	-	-	-
Total				30	22	275	275	550

OJT : On Job Training: Internship/Apprenticeship

FP : Field Project

RM: Research Methodology

RP: Research Project