

UM-DAE Centre for Excellence in Basic Sciences

Course structure for the M. Sc. (Integrated) Chemistry stream

Semester - I

Subject Code	Subject	Contact Hours per Week (Theory + Tutorials)	Credits
B101	Biology-I	2 + 1	3
C101	Chemistry-I	2 + 1	3
M101/100	Mathematics-I	2 + 1	3
P101	Physics-I	2 + 1	3
G101	Computer basics	2 + 1	3
H 101	Communication Skills	2 + 1	3
		Contact Hours per Week Laboratory	Credits
PL101	Physics Laboratory	4	2
CL101	Chemistry Laboratory	4	2
BL101	Biology Laboratory	4	2
GL101	Computer Laboratory	4	2
	Semester Credits		26
	Subtotal		26 of 240

Semester - II

Subject Code	Subject	Contact Hours per Week (Theory + Tutorials)	Credits
B201	Biology-II	2 + 1	3
C201/200	Chemistry-II	2 + 1	3
M201	Mathematics-II	2 + 1	3
P201	Physics-II	2 + 1	3
G201	Electronics and instrumentation	2 + 1	3
G 202	Glimpses of Contemporary Sciences	2 + 1	3
		Contact Hours per Week Laboratory	Credits
PL201	Physics Laboratory	4	2

CL201	Chemistry Laboratory	4	2
BL201	Biology Laboratory	4	2
GL201	Electronics Laboratory	4	2
	Semester Credits		26
	Subtotal		52 of 240

Semester - III

Subject Code	Subject	Contact Hours per Week (Theory + Tutorials)	Credits
CB 301	Essential mathematics for Chemistry and Biology	3 + 1	4
CB 302	Biochemistry-I	3 + 1	4
CB 303	Organic Chemistry-I	3 + 1	4
C 301	Inorganic Chemistry-I	3 + 1	4
H 301	World Literature	2 + 0	2
H 302	History and Philosophy of Sciences	2 + 0	2
		Contact Hours per Week Laboratory	
CL301	Chemistry Laboratory	6	3
GL301	Applied Electronics Laboratory	4	2
	Semester Credits		25
	Subtotal		77 of 240

Semester - IV

Subject Code	Subject	Contact Hours per Week (Theory + Tutorials)	Credits
PCB 401	Physical and Chemical kinetics	3 + 1	4
CB 401	Introductory Spectroscopy (UV-vis, fluorescence, IR, Raman, NMR)	3 + 1	4
C 401	Properties of Matter	3 + 1	4
C 402	Group theory	3 + 1	4
G 401	Statistical Techniques and Applications	3 + 1	4

		Contact Hours per Week Laboratory	Credits
CL 401	Chemistry Laboratory	6	3
GL 401	Computational Laboratory and Numerical Methods	4	2
	Semester Credits		25
	Subtotal		102 of 240

Semester - V

Subject Code	Subject	Contact Hours per Week (Theory + Tutorials)	Credits
CB 501	Analytical Chemistry	3 + 1	4
C 501	Quantum Chemistry	3 + 1	4
C 502	Inorganic Chemistry II	3 + 1	4
C 503	Organic Chemistry II	3 + 1	4
G 501	Earth Science and Energy & Environmental Sciences	3 + 1	4
		Contact Hours per Week Laboratory	Credits
CL 501	Chemistry Laboratory	8	4
	Semester Credits		24
	Subtotal		126 of 240

Semester - VI

Subject Code	Subject	Contact Hours per Week (Theory + Tutorials)	Credits
CB 601	Biophysical Chemistry	3 + 1	4
C 601	Atomic and molecular spectroscopy	3 + 1	4
C 602	Inorganic Chemistry III	3 + 1	4
C 603	Organic Chemistry III	3 + 1	4

C 604	Nuclear Chemistry	3 + 1	4
		Contact Hours per Week Laboratory	Credits
CL 601	Chemistry Laboratory	8	4
	Semester Credits		24
	Subtotal		150 of 240

Semester - VII

Subject Code	Subject	Contact Hours per Week (Theory + Tutorials)	Credits
C 701	Photochemistry	3 + 1	4
C 702	Chemical Biology	3 + 1	4
C 703	Organometallics & Bio-inorganic Chemistry	3 + 1	4
C 704	Physical Organic Chemistry	3 + 1	4
CPr 701	Reading project	-	4
		Contact Hours per Week Laboratory	Credits
CL 701	Advanced Chemistry Laboratory-I	10	5
	Semester Credits		25
	Subtotal		175 of 240

Semester - VIII

Subject Code	Subject	Contact Hours per Week (Theory + Tutorials)	Credits
C 801	Chemistry of Materials	3 + 1	4
C 802	Macro and Supra-molecular chemistry	3 + 1	4
C 803	Reaction Dynamics	3 + 1	4
C 804	Computational Chemistry	3 + 1	4

		Contact Hours per Week Laboratory	Credits
CL 801	Advanced Chemistry Laboratory-II	10	5
CPr 801	Project		4
	Semester Credits		25
	Subtotal		200 of 240

Semester - IX

Subject Code	Subject	Contact Hours per Week (Theory + Tutorials)	Credits
CPR 901	Project	-	24
	Semester Credits		24
	Subtotal		224 of 240

Semester - X

Subject Code	Subject	Contact Hours per Week (Theory + Tutorials)	Credits
CE 1001	Elective I	3 + 1	4
CE 1002	Elective II	3 + 1	4
CE 1003	Elective III	3 + 1	4
CE 1004	Elective IV	3 + 1	4
	Semester Credits		16
	Subtotal		240 of 240