

Sardar Vallabhbhai National Institute of Technology (SVNIT) Surat
Department of Chemistry
Five Years Integrated M.Sc. Chemistry

Sr. No.	Subject	Code	Scheme L-T-P	Credits (Min.)	Notional hours of Learning (Approx.)
First Semester (1st year of MSc)					
1	Stoichiometry, Solutions and Gases	CY101	3-1-2	5	100
2	Atomic Structure and Chemical Bonding	CY103	3-0-2	4	85
3	Qualitative and Quantitative Analysis	CY105	3-0-2	4	85
4	Mathematics for Chemistry	MA121	3-1-0	4	70
5	Physics of Materials and Nuclei	PH111	3-0-0	3	55
6	Indian Value System and Social Consciousness	HS120	2-0-0	2	35
			Total	22	430
7	Vocational Training / Professional Experience (Optional) (Mandatory for Exit)	CYV01 / CYP01	0-0-10	5	200 (20 x 10)
Second Semester (1st year of MSc)					
1	Fundamentals of Organic Chemistry	CY102	3-1-2	5	100
2	Basic Industrial Chemistry	CY104	3-0-2	4	85
3	Chemistry of s- and p-block Elements	CY106	3-0-0	3	55
4	Fundamentals of Computer and Programming	CS110	3-0-2	4	85
5	English and Professional Communication	HS110	3-1-0	4	70
			Total	20	395
6	Vocational Training / Professional Experience (Optional) (Mandatory for Exit)	CYV02 / CYP02	0-0-10	5	200 (20 x 10)
Third Semester (2nd year of MSc)					
1	Chemistry of d- and f-block Elements	CY201	3-1-2	5	100
2	Hetero Functional Groups and Heterocycles	CY203	3-0-2	4	85
3	State and Properties of Matter	CY205	3-0-2	4	85
4	Optics	PH205	3-0-2	4	85
5	Quality Control and Quality Assurance	CY207	3-0-0	3	55
			Total	20	410
6	Vocational Training / Professional Experience (Optional) (Mandatory for Exit)	CYV03 / CYP03	0-0-10	5	200 (20 x 10)
Fourth Semester (2nd year of MSc)					
1	Coordination and Bioinorganic Chemistry	CY202	3-0-2	4	85
2	Organic Reaction Mechanism	CY204	3-1-2	5	100
3	Equilibrium and Changes	CY206	3-0-2	4	85
4	Dyes and Drugs	CY208	3-0-2	4	85
5	Biomolecules and Cell Biology	CY212	3-0-0	3	55
			Total	20	410
6	Laboratory Demonstration of Quality Control and Quality Assurance Practical Vocational Training / Professional Experience (Optional) (mandatory for exit)	CYV04 / CYP04	0-0-10	5	200 (20 x 10)

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Fifth Semester (3rd year of MSc)					
1	Organometallic Chemistry	CY301	3-0-2	4	85
2	Pericyclic Reactions and Photochemistry	CY303	3-0-4	5	115
3	Analytical Chemistry	CY305	3-0-4	5	115
4	Physical Methods of Structure Determination	CY307	3-0-0	3	55
5	Open Elective	CY3AA	3-0-0	3	55
			Total	20	425
6	Purification of Liquids and Solids Vocational Training / Professional Experience (Optional) (mandatory for exit)	CYV05 / CYP05	0-0-10	5	200 (20 x 10)
Sixth Semester (3rd year of MSc)					
1	Interpretative Molecular Spectroscopy	CY302	3-1-0	4	70
2	Molecules in Motion and Reaction Dynamics	CY304	3-1-2	5	100
3	Polymer Chemistry	CY306	3-0-4	5	115
4	Chemistry in Industries	CY308	3-0-0	3	55
5	Open Elective	CY3BB	3-0-0	3	55
			Total	20	395
6	Vocational Training / Professional Experience (Optional) (mandatory for exit)	CYV06 / CYP06	0-0-10	5	200 (20 x 10)
Seventh Semester (4th year of MSc)					
1	Reaction Mechanism in Coordination Chemistry	CY401	3-0-4	5	115
2	Synthetic Approaches in Organic Chemistry	CY403	3-0-4	5	115
3	Atomic Spectroscopy and Electron Microscopic Techniques	CY405	3-1-0	4	70
4	Computational Chemistry	CY407	3-0-4	5	115
5	Core Elective-1	CY4AA	3-0-0	3	55
6	MOOC Course*	CY453	3-0-0/ 3-1-0	3/4	
			Total	25-26	470
7	Skill Development on Computational Tools Vocational Training / Professional Experience (Optional) (mandatory for exit)	CYV07 / CYP07	0-0-10	5	200 (20 x 10)
Eighth Semester (4th year of MSc)					
1	Symmetry, Spectra and Magnetism	CY402	3-1-0	4	70
2	Chemistry of Natural Products	CY404	3-0-4	5	115
3	Physical Aspects of Molecular Spectroscopy	CY406	3-1-0	4	70
4	Purification and Separation Techniques	CY408	3-0-4	5	115
5	Core Elective-2	CY4BB	3-0-0	3	55
6	MOOC Course*	CY456	3-0-0/ 3-1-0	3/4	
			Total	24-25	425
7	Skill Development on GMP and GLP Vocational Training / Professional Experience (Optional) (mandatory for exit)	CYV08 / CYP08	0-0-10	5	200 (20 x 10)

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Ninth Semester (5th year of MSc)					
1	Quantum Chemistry	CY501	3-0-0	3	55
2	Heterocycles and Organic Synthesis	CY503	3-0-0	3	55
3	Research Methodology in Chemistry	CY505	3-0-0	3	55
4	Core Elective-3	CY5AA	3-X-X	3/4	55/70/85
5	Core Elective-4	CY5BB	3-X-X	3/4	55/70/85
6	Research Training in Chemical Sciences	CYP09	0-0-10	5	200 (20 x 10)
			Total	20-22	475-535
Tenth Semester (5th year of MSc)					
1	M.Sc. Dissertation** Industrial Internship / Professional Experience (Mandatory)	CYP10	0-0-40	20	800 (40 X 20)
			Total	20	800

Sr. No.	Elective	Code	Scheme L-T-P
Open Elective			
1	Unit Process in Chemical Industries	CY309	3-0-0
2	Materials Chemistry	CY312	3-0-0
Core Elective			
1	Surfactant Chemistry	CY451	3-0-0
2	Chemistry of Nanomaterials	CY452	3-0-0
3	Green Chemical Processing	CY454	3-0-0
4	C-H Functionalization	CY455	3-0-0
5	Catalysis	CY551	3-0-0
6	Medicinal Chemistry	CY552	3-0-0
7	Supramolecular Chemistry	CY553	3-0-0
8	Nuclear Chemistry	CY554	3-0-0

*Students will be required to opt any one Massive Open Online Courses (MOOC) course through NPTEL / SWAYAM platform in Semester- VII or Semester VIII excluding the courses of the existing curriculum of five years integrated programme in chemistry. Necessary approval from the department is required before the registration of the courses on above platform. The credit of the courses through above platform will be considered as per the norms of the institute.

** Students can continue their dissertation work along with the internship / placement, if offered by the companies through Career Development Cell (CDC), SVNIT Surat. However, student will be required to complete their dissertation work and viva voce examination as per the academic calendar of the institute.

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