

Sardar Vallabhbhai National Institute of Technology (SVNIT) Surat
Department of Chemistry
B. Tech. in Industrial Chemistry

Sr. No.	Subject	Code	Scheme L-T-P	Credits (Min.)	Notional hours of Learning (Approx.)
First Semester (1st year of B.Tech.)					
1	Introduction to Physical Chemistry	IC101	3-0-2	4	85
2	Fundamentals of Inorganic Chemistry	IC103	3-0-2	4	85
3	Environmental Pollution and Waste Management	IC105	3-0-0	3	55
4	Mathematics for Chemistry	MA121	3-1-0	4	70
5	Indian Value System and Social Consciousness	HS120	2-0-0	2	40
6	Engineering Drawing	ME110	2-0-4	4	100
			Total	21	435
7	Vocational Training / Professional Experience (Optional) (Mandatory for Exit)	CYV01 / CYP01	0-0-10	5	200 (20 x 10)
Second Semester (1st year of B.Tech.)					
1	Fundamentals of Organic Chemistry	IC102	3-0-2	4	85
2	Basic Industrial Chemistry	CY104	3-0-2	4	85
3	Fundamentals of Computer and Programming	CS110	3-0-2	4	85
4	English and Professional Communication	HS110	3-1-0	4	70
5	Numerical Methods in Chemical Engineering	CH106	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 B.Tech.)					
1	Industrial Organic Chemistry	IC201	3-0-2	4	85
2	Chemical Kinetics and Engineering Thermodynamics	IC203	3-0-2	4	85
3	Fundamentals of Quantum Chemistry	IC231	3-1-0	4	70
4	Quality Control and Quality Assurance	CY207	3-0-0	3	55
5	Fluid Flow Operations	CH203	3-1-2	5	100
			Total	20	395
6	Vocational Training / Professional Experience (Optional) (Mandatory for Exit)	CYV03/ CYP03	0-0-10	5	200 (20 x 10)
Fourth Semester (2nd year of B.Tech.)					
1	Heat and Mass Transfer	IC202	3-1-0	4	70
2	Transition Metal Complexes and Bioinorganic Chemistry	IC204	3-1-2	5	100
3	Synthetic Methodology in Organic Chemistry	IC232	3-0-2	4	85
4	Machine Learning in Chemistry	IC251	3-0-0	3	55
5	Innovation, Incubation and Entrepreneurship	MG110	3-1-0	4	70
			Total	20	380
6	Minor/ Honor (M/H#1)	IC2MM	3-0-0	3	55
7	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 B.Tech.)					
1	Catalysis in Industries	IC301	3-1-0	4	70
2	Unit Processes in Chemical Industries	IC303	3-0-2	4	85
3	Pharmaceutical Chemistry	IC331	3-0-2	4	85
4	Elective	IC3XX/ CH3XX	3-0-0	3	55
5	Institute Elective	CY361	3-0-0	3	55
6	Seminar	IC305	0-0-2	1	40
7	MOOC Course*	φ			
	* MOOC Course may be registered in the Fifth or Sixth Semester		Total	19	390
8	Minor/ Honor (M/H#2)	IC3MM	3-0-0	3	55
9	Vocational Training / Professional Experience (Optional) (mandatory for exit)	CYV05 / CYP05	0-0-10	5	200 (20 x 10)
Sixth Semester (3rd year of B.Tech.)					
1	Polymer Science and Technology	IC302	3-0-2	4	85
2	Chemistry in Industries	CY308	3-0-0	3	55
3	Instrumentation and Process Control	CH302	3-1-2	5	100
4	Elective	IC3XX/ CH3XX	3-1-0/ 3-0-2	4	70/ 85
5	Institute Elective	CY362	3-0-0	3	55
6	Project-I	IC306	0-0-6	3	90
7	MOOC Course*	φ			
	* MOOC Course may be registered in the Fifth or Sixth Semester		Total	22	455/470
8	Minor/ Honor (M/H#3)	IC3MM	3-0-0	3	55
9	Vocational Training / Professional Experience (Optional) (mandatory for exit)	CYV06 / CYP06	0-0-10	5	200 (20 x 10)
Seventh Semester (4th year of B.Tech.)					
1	Instrumental Methods Of Chemical Analysis	IC401	3-0-2	4	85
2	Elective	IC4XX	3-0-0	3	55
3	Elective	IC4YY/ CH4YY	3-0-0/ 3-1-0	3/4	55/70
4	Elective	IC4AA/ CH4AA	3-0-0	3	55
5	Elective	IC4BB/ CH4BB	3-0-0	3	55
6	Project-II	IC402	0-0-8	4	120
			Total	20/21	415/430
7	Minor/ Honor (M/H#4)	IC4MM	3-0-0	3	55
8	Vocational Training / Professional Experience (Optional) (mandatory for exit)	CYV07 / CYP07	0-0-10	5	200 (20 x 10)
Eighth Semester (4th year of B.Tech.)					
1	Industrial Internship / Professional Experience (Mandatory)	CYP10	0-0-40	20	800 (40 X 20)

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			Total	20	800
# Total Credits = 162-163			# Total Hours =3665-3695		

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Sr. No.	Optional Cores	Code	Scheme L-T-P
1	Fundamentals of Quantum Chemistry	IC231	3-1-0
2	Synthetic Methodology In Organic Chemistry	IC232	3-0-2
3	Food Technology	IC233	3-0-2
4	Electrochemistry	IC234	3-0-2
5	Organometallic Chemistry	IC235	3-0-2
6	Pharmaceutical Chemistry	IC331	3-0-2
7	Industrial Inorganic Chemistry	IC332	3-0-0
8	Nuclear Chemistry and Energy	IC333	3-0-0
9	Process Equipment Design	CH304	3-1-0

Sr. No.	Electives	Code	Scheme L-T-P
1	Quality Control and Quality Assurance	CY207	3-0-0
2	Introduction to Machine Learning	IC251	3-0-0
3	Introduction to Engineering Statistics	CH251	3-0-0
4	Introduction to Macromolecules	CH252	3-0-0
5	Micro Process Engineering	CH253	3-0-0
6	Polymer Engineering	CH254	3-0-0
7	Corrosion Science and Engineering	CH255	3-0-0
8	Material Science and Technology	CH256	3-0-0
9	Enzyme Science and Technology	CH257	3-0-0
10	Sustainable Development Goals	CH258	3-0-0
11	Environment Management System	CH259	3-0-0
12	Sustainable Energy and Environmental Systems	CH260	3-0-0
13	Polymer Nanocomposite	CH261	3-0-0
14	Resource Recovery and Sustainability	CH262	3-0-0
15	Lean Six Sigma	CH263	3-1-0
16	Industrial Applications of Nanomaterials	IC351	3-0-0
17	Physical Aspects of Molecular Spectroscopy	IC352	3-1-0
18	Computational Methods in Chemistry	IC353	3-0-2
19	Molecular Spectroscopy	IC354	3-1-0
20	Group Theory and Magnetism	IC355	3-1-0
21	Process Equipment Design	CH304	3-1-0
22	Electrochemistry and Energy	CH351	3-0-0
23	Bioprocess Engineering	CH352	3-0-0
24	Cleaner Technologies in Chemical Process Industries	CH354	3-0-0
25	Fundamentals of Colloid and Interfacial Science	CH355	3-0-0
26	Process Integration	CH356	3-0-0
27	Petroleum Refinery Engineering	CH357	3-0-0
28	Waste to Energy Conversion	CH358	3-0-0

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29	Biomass Conversion and Biorefinery	CH359	3-0-0
30	Computational Heat Transfer and Fluid Flow	CH360	3-0-0
31	Smart Polymers	CH361	3-0-0
32	New Separation Techniques	CH362	3-0-0
33	Fluidization Engineering	CH363	3-0-0
34	Advances in Chemical Engineering	CH364	3-0-0
35	Industrial Waste Treatment Methods	CH365	3-0-0
36	Multiphase Microfluidics	CH366	3-0-0
37	Advanced Polymers	CH368	3-0-0
38	Safety and Pollution Control in Chemical Process Industries	CH369	3-0-0
39	Computational Fluid Dynamics	CH370	3-0-0
40	Fuel, Petroleum and Petrochemicals	IC451	3-0-0
41	Dyes, Paints and Pigments	IC452	3-0-0
42	Biomolecular Chemistry in Industrial Applications	IC453	3-0-0
43	Chemistry of Supramolecules	IC454	3-0-0
44	Drug Design and Discovery	IC455	3-0-0
45	Elements of Transport Phenomena	CH403	3-1-0
46	Process Plant Safety	CH451	3-0-0
47	Sustainability, Green Chemistry and Engineering	CH452	3-0-0
48	Pharmaceutical Technology	CH453	3-0-0
49	Computer Aided Design in Chemical Engineering	CH454	3-0-0
50	Biomass & Fuel Cell Technology	CH455	3-0-0
51	Basics of Soft Matter	CH456	3-0-0
52	Green Technology	CH457	3-0-0
53	Microfluidics and Nanofluidics	CH458	3-0-0
54	Multiphase Flow	CH459	3-0-0
55	Catalyst Science and Technology	CH460	3-0-0
56	Advanced Chemical Engineering Thermodynamics	CH461	3-0-0

Sr. No.	Institute Elective	Code	Scheme L-T-P
Fifth Semester (3rd year of UG)			
1.	Chemistry of Engineering Materials	CY361	3-0-0
Sixth Semester (3rd year of UG)			
2.	Analytical Techniques for Material Characterization	CY362	3-0-0

*Students will be required to opt any one Massive Open Online Courses (MOOC) course through NPTEL / SWAYAM platform in Semester- V or Semester VI excluding the courses of the existing curriculum B. Tech. in Industrial 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 Carrier 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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