



**INTEGRAL UNIVERSITY, LUCKNOW**  
**DEPARTMENT OF CHEMISTRY**

**Curriculum Structure of UG & PG Program with Industrial Chemistry as per NEP-2020**

Y.	Sem.	Subject I	Subject II	Subject III	Subject IV	Vocational***	Co-curricular**	Research Project etc.	Min. Credits (Year)	Cumulative minimum credits	
		Major 4/5/6 Credits	Major 4/5/6 Credits	Major 4/5/6 Credits	Minor Elective 4/5/6 Credits	Minor 3 Credits	Minor 2 Credits	Major 3/6/8 Credits			
		Own Faculty	Own Faculty	Own/Other Faculty	Other Faculty	Vocational/ Skill development course	Co-curricular (Qualifying)	Inter/Intra Faculty related to main subject			
1	I	Fundamental of Industrial Chemistry (Th-4) Basic Analytical Methods (Pract-2)	Fundamentals of Chemistry (Th-4)	Water Treatment and Analysis (Th-4)		Plastic Waste Management (3-Credit)	Food, Nutrition and Hygiene (2-Credit)		50 (First Year)	0 (46) (Certificate in Materials and Techniques in Chemical Industries)	
		Basic Analytical Methods (Pract-2)	Quantitative Analysis (Pract-2)	Water Quality Analysis (Pract-2)							
	II	Material Science and Techniques in Chemical Industries (Th-4)	Bioorganic and Materials Chemistry (Th-4)	Inorganic Chemical Process Industry (Th-4)	Elementary Mathematics/ Essential Professional Communication (Th-4)	Laboratory safety & Sample Handling (3-Credit)	First Aid and Health (2-Credit)				
		Materialistic Analysis (Pract-2)	Biochemical Analysis (Pract-2)	Titrimetric Analysis (Pract-2)							
2	III	Process Instrumentation and Industrial Chemical Analysis (Th-4)	Chemical Dynamics & Coordination Chemistry (Th-4)	Chemical Process and Unit Operation in Industry (Th-4)		Food Testing and Quality Control (3-Credit)	Human Values and Environment studies (2-Credit)		50 (Second Year)	00 (92) (Diploma in Industrial Instrumentation and Chemical Analysis)	
		Industrial Chemical and Instrumentation Analysis (Pract-2)	Physical Analysis (Pract-2)	Chemical Preparation and Analysis (Pract-2)							
	IV	Process Chemistry (Th-4)	Quantum Mechanics and Analytical Techniques (Th-4)	Industrial Waste Treatment & Management (Th-4)	Basic Manufacturing Process/ Elementary Mathematics (Th-4)	Organic Forming (3-Credit)	Physical Education and Yoga (2-Credit)				
		Qualitative and Synthetic Methods (Pract-2)	Instrumental Analysis (Pract-2)	Industrial Waste Analysis (Pract-2)							
3	V	Industrial Chemical (Th-4)	Pollution, its Management and Industrial Economics (Th-4)				Analytic Ability and Digital Awareness (2-Credit)	Research Project-1 (3-Credit)	50 (Third Year)	150 (138) (B.Sc. Industrial Chemistry)	
		Industrial Aspects of Organic Chemistry (Th-4)	Food and Dairy Chemistry (Th-4)								
		Industrial Chemicals and Pollution Management (Pract-2)	Qualitative Analysis (Pract-2)								
	VI	<b>Agrochemicals (01)*</b>						Communication Skills and Personality Development (2-Credit)			Research Project-2 (3-Credit)
		General & Halogenated Insecticide (Th-4)	Fungicides and Herbicides (Th-4)								
		Petrochemicals (Th-4)	Chemistry of Dyes (Th-4)								
		Analysis of Agrochemicals-I (Pract-2)	Analysis of Agrochemicals-II (Pract-2)								
		<b>Pharmaceutical Chemistry (02)*</b>									
		Pharmaceutical and Phytochemicals (Th-4)	Medicinal Chemistry and Toxicology (Th-4)								
		Petrochemicals (Th-4)	Chemistry of Dyes (Th-4)								
		Experimental Pharmaceutical Chemistry-I (Pract-2)	Experimental Pharmaceutical Chemistry-II (Pract-2)								
		<b>Polymer Science (03)*</b>									
		Synthetic Polymer (Th-4)	Polymerization Techniques and Characterization (Th-4)								
Petrochemicals (Th-4)	Chemistry of Dyes (Th-4)										
Synthesis and Analysis of Polymers-I (Pract-2)	Synthesis and Analysis of Polymers-II (Pract-2)										

4	VII	Inorganic Chemistry-I (Th-4)				Research Project (6-Credit)	56 (Fourth Year)	206 (192) (B.Sc. (Research) Industrial Chemistry)
		Organic Chemistry-I (Th-4)						
		Physical Chemistry-I (Th-4)						
		Modern Analytical Techniques (Th-4)						
		Industrial Chemistry Practical-I (Pract-4)						
	VIII	Inorganic Chemistry-II (Th-4)						
		Organic Chemistry-II (Th-4)						
		Physical Chemistry-II (Th-4)						
		Coordination and Organometallic Chemistry of Transition Elements (Th-4)						
		Industrial Chemistry Practical-II (Pract-4)						
5	IX	Heavy & Fine Chemicals/ Chemistry of Industrial Minerals (Th-4)				Research Project (6-Credit)	52 (Fifth Year)	258 (246) (M.Sc. Industrial Chemistry)
		Surfactants and Coatings/ Chemistry of Oils, Fats, Proteins (Th-4)						
		Petroleum Chemistry/ Cosmetics & Perfumery (Th-4)						
		Quantum Chemistry (Th-4)						
		Advance Chemistry Practical-I (Pract-4)						
	IX	Bioinorganic & Supra molecular Chemistry / Organo-transition Metal Chemistry (Th-4)						
		Modern Analytical Techniques / MIMA & Computational Techniques (Th-4)						
		Pharmaceutical Chemistry/ Green Chemistry (Th-4)						
		Molecular Spectroscopy and Spectral Techniques (Th-4)						
		Advance Chemistry Practical-II (Pract-4)						

\*01, 02 & 03 for the elective papers Polymer Chemistry, Pharmaceutical Chemistry & Agrochemicals respectively in semester-VI. \*\*Co-curricular courses offered by UP higher education. \*\*\* Vocational courses offered by respective Department/ University



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**Curriculum Structure with Subject Code of UG Program with Industrial Chemistry as per NEP-2020**

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		Major 4/5/6 Credits	Major 4/5/6 Credits	Major 4/5/6 Credits	Minor Elective 4/5/6 Credits	Minor 3 Credits	Minor 2 Credits	Major 3/6/8 Credits			
		Own Faculty	Own Faculty	Own/Other Faculty	Other Faculty	Vocational/ Skill development course	Co-curricular (Qualifying)	Inter/Intra Faculty related to main subject			
1	I	B190101T/ CH131 (Th-4)	B020101T/ CH132 (Th-4)	CH135 (Th-4)		CH137 (3-Credit)	Z010101T (2-Credit)		50 (First Year)	50 (Certificate in Materials and Techniques in Chemical Industries)	
		B190102P/ CH133 (Pract-2)	B020102P/CH134 (Pract-2)	CH136 (Pract-2)							
	B190201T/ CH138 (Th-4)	B020201T/ CH139 (Th-4)	CH142 (Th-4)	MT108/ LN104 (Th-4)	CH144 (3-Credit)	Z02020 (2-Credit)					
	B190202P/ CH140 (Pract-2)	B020202P/ CH141 (Pract-2)	CH143 (Pract-2)								
2	III	B190301T/ CH231 (Th-4)	B020301T/ CH232 (Th-4)	CH235 (Th-4)		CH237 (3-Credit)	Z030301 (2-Credit)		50 (Second Year)	100 (Diploma in Industrial Instrumentation and Chemical Analysis)	
		B190302P/ CH233 (Pract-2)	B020302P/ CH234 (Pract-2)	CH236 (Pract-2)							
	B190401T/ CH238 (Th-4)	B020401T/ CH239 (Th-4)	CH242 (Th-4)	ME231/ MT108 (Th-4)	CH244 (3-Credit)	Z040401 (2-Credit)					
	B190402P/ CH240 (Pract-2)	B020402P/ CH241 (Pract-2)	CH243 (Pract-2)								
3	V	B190501T/ CH331 (Th-4)	B190502T/ CH332 (Th-4)	-		-	Z050501 (2-Credit)	CH336 (3-Credit)	50 (Third Year)	150 (B.Sc. Industrial Chemistry)	
		CH335 (Th-4)	CH341 (Th-4)								
		B190503P/ CH333 (Pract-2)	B020503P/ CH334 (Pract-2)								
	AGROCHEMICALS (01)*										
	B190609T/ CH337 (Th-4)	B190610T/ CH338 (Th-4)									
	CH346 (Th-4)	CH351 (Th-4)									
	B190611P/ CH339 (Pract-2)	B190611P/ CH340 (Pract-2)									
	PHARMACEUTICAL CHEMISTRY (02)*										
	B190605T/ CH342 (Th-4)	B190606T/ CH343 (Th-4)					Z060601 (2-Credit)	CH352 (3-Credit)			
	CH346 (Th-4)	CH351 (Th-4)									
	B190607P/ CH344 (Pract-2)	B190607P/ CH345 (Pract-2)									
	POLYMER SCIENCE (03)*										
	B190601T/ CH347 (Th-4)	B190602T/ CH348 (Th-4)									
CH346 (Th-4)	CH351 (Th-4)										
B190603P/ CH349 (Pract-2)	B190603P/ CH350 (Pract-2)										







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**Evaluation Scheme of UG & PG Program with Industrial Chemistry as per NEP 2020**

**Diploma in Industrial Instrumentation and Chemical Analysis)**

**Year: Second / Semester: Third (Odd Semester)**

S. N.	Course Code	Course Title	Theory / Practical	Course Type	Periods/ Per week			Continuous Assessment			End Semester Examination (ESE)	Subject Total	Total Credit Points	Attributes						United Nations Sustainable Development Goals (SDGs)		
					Lecture (L)	Tutorial (T)	Practical (P)	Class Test (CT)	Teacher Assessment (TA)	Total				Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value		Professional Ethics	
1	B190301T/CH231	Process Instrumentation and Industrial Chemical Analysis	Theory	Core Major (Compulsory)	3	1	0	15	10	25	75	100	04	✓	✓	✓		✓	✓	✓	8	9
2	B020301T/CH232	Chemical Dynamics & Coordination Chemistry	Theory		3	1	0	15	10	25	75	100	04	✓	✓	✓		✓	✓	✓	9	
3	B190302P/CH233	Industrial Chemical and Instrumentation Analysis	Practical		0	0	2	15	10	25	75	100	02	✓	✓	✓		✓	✓	✓	12	
4	B020302P/CH234	Physical Analysis	Practical		0	0	2	15	10	25	75	100	02	✓	✓	✓		✓	✓	✓	9	
5	CH235	Chemical Process and Unit Operation in Industry	Theory	Optional Major Course	3	1	0	15	10	25	75	100	04	✓	✓	✓		✓	✓	✓	6	
6	CH236	Chemical Preparation and Analysis	Practical		0	0	2	15	10	25	75	100	02	✓	✓	✓		✓	✓	✓	6	
7	CH237	Food Testing and Quality Control	Theory+ Practical	Vocational	1	0	2	-	-	-	100	100	03	✓	✓	✓		✓	✓	✓	3	12
8	Z030301	Human Values and Environment studies	Theory	Co-curricular (Compulsory)	2	0	0	15	10	25	75	100	02	✓	✓	✓		✓	✓	✓	3	
<b>TOTAL</b>					<b>12</b>	<b>3</b>	<b>8</b>	<b>105</b>	<b>70</b>	<b>175</b>	<b>625</b>	<b>800</b>	<b>23</b>									







