Cumulative Minimum Credits Required for Award of Certificate; Diploma; Degree	Year	Sem.	Subject I Major (Core) 4/5/6Credits Own Faculty	Subject II Minor 4/5/6 Credits Any Faculty (Multidisciplinary)	Vocational Minor 3 Credits Vocational/ Skill Development Course	Co-curricular Minor 2 Credits Co-curricular (Q)	Audit Course* Compulsory Non-credits Audit Course (Q & NC)	Research Project** Major 3/4/5 Credits Inter/Intra Faculty	Min. Credits (Year)
40 Certificate in Materials and Techniques in Chemical Industries	1	I	**B190101T/CH131:** Fundamentals of Industrial Chemistry **(T-4)** **B020101T/CH151:** Fundamentals of Chemistry-I **(T-4)** • **B190102P/CH133:** Basic Analytical Methods **(P-2)** • **B020102P/CH134:** Quantitative Analysis **(P-2)**		• **B000101V/CH137** Plastic Waste Management **OR** • **MOOCs/SWAYAM etc. (T+P=3)**	**Z010101T/BE105** Food, Nutrition and Hygiene **(C-2)**	**A050101T/HM101** Rashtra Gaurav		**40** (First)
		II	**B190201T/CH138:** Material Science and Techniques in Chemical Industries **(T-4)** **B020201T/CH139:** Bioorganic and Materials Chemistry **(T-4)** • **B190202P/CH140:** Materialistic Analysis **(P-2)** • **B020202P/CH141**: Biochemical Analysis **(P-2)**	• **B030202T/MT148** Basic Mathematics & Statics **OR** • **A040209T/LN109** Basics of Communication **OR** • **EVS/BS (4+2=6)**	• **B000201V/CH144** Laboratory Safety & Sample Handling **OR** • **MOOCs/SWAYAM etc. (T+P=3)**	**Z020201T/NS110** First Aid and Health **(C-2)**	**B020205T/CH159** Advanced Application of Artificial Intelligence in Chemical Sciences		
40+40=80 Diploma in Industrial Instrumentation and Chemical Analysis	2	III	**B190301T/CH231:** Process Instrumentation and Industrial Chemical Analysis **(T-4)** **B020301T/CH232**: Chemical Dynamics & Coordination Chemistry **(T-4)** • **B190302P/CH233**: Industrial Chemical and Instrumentation Analysis **(P-2)** • **B020302P/CH234**: Physical Analysis **(P-2)**		• **B000301V/CH237** Food Testing and Quality Control **OR** • **MOOCs/SWAYAM etc. (T+P=3)**	Regional Language*** **(C-2)**			**40** (Second)
		IV	**B190401T/CH238**: Process Chemistry **(T-4)** **B020401T/CH239**: Quantum Mechanics and Analytical Techniques **(T-4)** • **B190402P/CH240**: Qualitative and Synthetic Methods **(P-2)** • **B020402P/CH241**: Instrumental Analysis **(P-2)**	• **B030402T/MT237** Numerical Analysis & Testing of Hypothesis **OR** • **A040405T/LN234** Effective Professional Communication Skills **OR** • **EVS/BS (4+2=6)**		**Z040401T/PH201** Physical Education and Yoga **(C-2)**		**B190405T/CH249** Industrial Chemistry Summer Internship **(C-3)**	
3-Year Single Subject with Honours UG Degree									
80+50=130 (120) 3-Year B.Sc. Honours in Industrial Chemistry	3	V	**B190501T/CH331:** Industrial Chemical **(T-4)** **B190502T/CH332:** Pollution, its Management, and Industrial Economics **(T4)** • **B190503P/CH333:** Industrial Chemicals and Pollution Management **(P2)** • **B020503P/CH339:** Qualitative Analysis **(P-2)** **B190505T/CH334:** Industrial Aspects of Chemistry **(T-4)** **B190506T/CH335:** Food and Dairy Chemistry **(T-4)**					**B190504R/CH336** Industrial Chemistry Research Project-1 **(C-5)**	**50** (Third)
		VI	**Compulsory:** **B020601T/CH353:** Organic Synthesis-B **(T-4)** **B020602T/CH354:** Chemical Energetics and Radiochemistry **(T-4)** **B020603P/CH355:** Analytical Methods **(P-2)** **Choose Any One:** **Polymer Science (01)*** **B190601T/CH343:** Synthetic Polymer **(T-4)** **B190602T/CH344:** Polymerization Techniques and Characterization **(T-4)** **B190603P/CH345:** Synthesis and Analysis of Polymers **(P-2)** **Pharmaceutical Chemistry (02)*** **B190605T/CH347:** Pharmaceutical and Phytochemicals **(T-4)** **B190606T/CH348:** Medicinal Chemistry and Toxicology **(T-4)** **B190607P/CH349:** Experimental Pharmaceutical Chemistry **(P-2)** **Agrochemicals (03)***					**B190604R/CH346** Industrial Chemistry Research Project-2 **(C-5)**	

			B190609T/CH350: General & Halogenated Insecticide **(T-4)**			
			B190610T/CH351: Fungicides and Herbicides **(T-4)**			
			B190611P/CH352: Analysis of Agrochemicals **(P-2)**			
4-Year UG Degree with Honours (<75% Marks)						
130+40=170 **(160) 4-Year** **B.Sc.** **in Industrial Chemistry with Honours**	**4**	**VII**	**B020701T/CH431:** Inorganic & Material Chemistry **(T-4)**			**40** (Fourth)
			B020702T/CH432: Organic & Physical Chemistry **(T-4)**			
			B190701T/CH433: Concepts of Environmental Chemistry **(T-4)**			
			B190702T/CH434: Analytical Techniques in Chemistry **(T-4)**			
			• **B190705P/CH437:** Industrial Chemistry Laboratory-I **(P-2)** • **B020705P/CH435:** Chemistry Laboratory-I **(P-2)**			
		VIII	**B190801T/CH439:** Essential Oils, Dyes, Heavy & Fine Chemicals **(T-4)**			
			B190802T/CH440: Corrosion, Lubrication, Paints, Sugar & Pulp Chemistry **(T4)**			
			B190803T/CH441: Chemical Analysis in Agro, Food, Soap & Detergent Industries **(T-4)**			
			B190804T/CH442: Chemical Safety Measures & Industrial Hygiene **(T-4)**			
			• **B190805P/CH443:** Industrial Chemistry Laboratory-II **(P-2)** • **B020805P/CH449**: Chemistry Laboratory-II **(P-2)**			
4-Year UG Degree with Honours & Research (≥75% Marks)						
130+40=170 **(160) 4-Year** **B.Sc.** **in Industrial Chemistry with Honours & Research**	**4**	**VII**	**B020701T/CH431:** Inorganic & Material Chemistry **(T-4)**		**B190706R/CH436** Industrial Chemistry Research Project-3 **(C-4)**	**40** (Fourth)
			B020702T/CH432: Organic & Physical Chemistry **(T-4)**			
			• **B190701T/CH433:** Concepts of Environmental Chemistry **OR** • **B190702T/CH434:** Analytical Techniques in Chemistry **(T-4)**			
			• **B190705P/CH437:** Industrial Chemistry Laboratory-I **(P-2)** • **B020705P/CH435:** Chemistry Laboratory-I **(P-2)**			
		VIII	**B190801T/CH439:** Essential Oils, Dyes, Heavy & Fine Chemicals **(T-4)**			
			B190802T/CH440: Corrosion, Lubrication, Paints, Sugar & Pulp Chemistry **(T4)**			
			• **B190803T/CH441:** Chemical Analysis in Agro, Food, Soap & Detergent Industries **OR** • **B190804T/CH442:** Chemical Safety Measures & Industrial Hygiene **(T-4)**		**B190806R/CH444** Industrial Chemistry Research Project-4 **(C-4)**	
			• **B190805P/CH443:** Industrial Chemistry Laboratory-II **(P-2)** • **B020805P/CH449:** Chemistry Laboratory-II **(P-2)**			
One Year PG Degree						
170+40=210 **(200)** **M.Sc.** **in Industrial Chemistry**	**5**	**IX**	**B190901T/CH531:** Chemistry of Agrochemicals, Textiles, Surfactants and Coatings **(T-4)**		**B190905R/CH535** Industrial Chemistry Research Project-5 **(C-4)**	**40** (Fifth)
			B190902T/CH532: Chemistry of Cosmetics & Perfumery **(T-4)**			
			B190903T/CH533: Chemistry of Polymer & Petrochemicals **(T-4)**			
			• **B020904P/CH539:** Advance Chemistry Laboratory-I **(P-2)** • **B190904P/CH534:** Advance Industrial Chemistry Laboratory-I **(P-2)**			
		X	• **B191001T/CH541:** Intellectual Property Rights in Chemical Industry **OR** • **B191002T/CH542:** Natural Product & Medicinal Chemistry **(T-4)**		**B191007R/CH547** Industrial Chemistry Research Project-6 **(C-4)**	
			• **B191003T/CH543:** Industrial Analytical Chemistry **OR** • **B191004T/CH544:** Molecular Spectroscopy & Chromatography **(T-4)**			
			B191005T/CH545: Industrial Chemistry Seminar **(T-4)**			
			• **B191006P/CH553:** Advance Chemistry Laboratory-II **(P-2)** • **B021004P/CH546:** Advance Industrial Chemistry Laboratory-II **(P-2)**			

- ✓ T-4 = Theory with 4 credits; P-2 = Practical with 2 credits; R = Research Project with 4 credits; Q: Qualifying; NC = Non-Credit; MOOCs = Massive Online Open Courses.
- ✓ Co-curricular courses offered by UP higher education.
- ✓ Vocational courses offered by respective Department/University
- ✓ *****Audit Courses: The respective Department/University offers Rashtra Gaurav and X+AI (Advanced Application of Artificial Intelligence in Chemical Sciences) as compulsory **Non-Credit** courses. All students will have to pass these courses to obtain a Certificate, Diploma, Undergraduate Degree, or Undergraduate Honors Degree with Research only once.
- ✓ 01, 02, and 03 combinations are elective papers, out of which students must choose any one with a minimum of ten students' strengths.
- ✓ For entry into the 4-Year UG Degree with Honours and Research program, students must secure ≥75% marks in the 3-Year UG Degree program.
- ✓ Students with a 3-Year Single Subject with Honours UG Degree below 75% marks in the 3-Year UG Degree program go for a two-year PG program.
- ✓ **Research Project/Dissertation/Internship/Field or Survey Work etc.
- ✓ ***Regional Language is a co-curricular course offered by the respective Department or University in the third semester, such as Hindi, Urdu, Awadhi, Sanskrit, etc.