

SANT GADGE BABA AMRAVATI UNIVERSITY, AMRAVATI



THREE-YEAR UNDERGRADUATE PROGRAMME

Bachelor of Science (B.Sc.)

Subject: INDUSTRIAL CHEMISTRY

FACULTY: SCIENCE AND TECHNOLOGY

(Courses effective from Academic Year 2026-2027 Under Uniform NEP 2020)

Scheme of Teaching-Learning-Evaluation, Credit Distribution, Workload Calculation and Examination

Credit Distribution

Three/Four-year UG Degree Programme (Level 4.5 to 5.5)

Vertical	Vertical Type	I	II		III	IV	V	VI	Total Credits	Grand Total
	(i) Three-year UG Degree Programme (Level 4.5.to 5.5)									
A	Major DSC (60–64) (Minimum 50% of Total Credits)	4	4	Major	6	8	8	8	38	48
				IKS	2				2	
		0	0	Elective	0	0	4	4	8	
B	Minor (from same faculty of DSC) (18–24)	4	4		4	4	4	4	24	24
C	Generic/Open Elective (OE) (Faculty-wise basket other than Major/Minor faculty) (10–12)	4	4		2	2	0	0	12	12
D(i)	Vocational Skill Courses (VSEC) corresponding to Major/Minor (8–10)	0	2		2	2	2	2	10	16
D(ii)	Skill Enhancement Courses (SEC)	2	2		0	0	2	0	6	
E(i)	Ability Enhancement Courses (AEC) (English + Modern Indian Language)	1+1	1+1		1+1	1+1	0	0	8	14
E(ii)	Indian Knowledge System (IKS) 2 Generic	2	0		0	0	0	0	2	
E(iii)	Value Education Courses (VEC) (Understanding India, EVS, Digital & Technological Solution) 4	2	2		0	0	0	0	4	
F(i)	Internship / Apprenticeship corresponding to Major 8 (OJT)	0	0		0	0	0	4	4	18
F(ii)	Field Projects / Community Engagement & Service (CEP) corresponding to Major 4-6	0	0		2	2	2	0	6	
F(iii)	Co-curricular Courses (CC) (health & wellness, yoga education, sports, fitness, cultural activities, NSS/ NCC & Fine/ Applied/ Visual/ Performing Arts 8	2	2		2	2	0	0	8	
	Total Credits per Semester	22	22		22	22	22	22	132	132

(ii) Four-year UG Degree programme (Level 6.0) Honors Degree in Major or Minor						
A. Honors Degree in Major or Minor						
	Vertical Type			Semester VII	Semester VIII	
	Major (Offered at Three-year UG Programme)	Mandatory		12-14(2*4+2*2 or 3*4+2)	12-14(2*4+2*2 or 3*4+2)	28
		Elective		4	4	8
	Research Methodology (RM)			4	0	8
	On the Job Training (OJT)			0	4	4
	Total			22	22	44
	Cumulative			(132+44) 176		
(ii) Four-year UG Degree Programme (Level 6.0)						
B. Honors with Research Degree in Major or Minor						
	Major (Offered at Three-year UG Programme)			Semester VII	Semester VIII	
		Mandatory		8-10 (24+2 or 24)	8-10 (24+2 or 24)	20
		Elective		4	4	8
	Research Methodology (RM)			4	0	4
	Research Project (RP)			4	8	12
	Total			22	22	44
	Cumulative			(132+44) 176		

Sant Gadge Baba Amravati University, Amravati

Teaching and Learning Scheme: for the Degree of Bachelor of Science

FACULTY: SCIENCE AND TECHNOLOGY

TLE Scheme for FIRST YEAR: SEMESTER – I (Industrial Chemistry) (Level 4.5)

(As per uniform NEP Scheme)

The Vertical	Type of Course	Course Code	Course Title	Credits	Workload	Theory/Practical				Theory/Pract (Total)	
						External		Internal		Max. Marks	Min. Marks
						Max. Marks	Min. Marks	Max. Marks	Min. Marks		
Major / Minor	Theory	120200	Mole Concept and Material Balance	2	2	30	9	20	6	50	20
	Lab/Practical	120201	Industrial Chemistry Lab 1	2	4	25	10	25	10	50	20
Minor / Major	Theory	-	-	2	2	30	9	20	6	50	20
	Lab/Practical	-	-	2	4	25	10	25	10	50	20
Generic/Open Elective	Theory	120202	Cleaning Products I	2	2	30	9	20	6	50	20
	Theory	120203	Herbal Cosmetics I	2	2	30	9	20	6	50	20
VSC	-	-	-	-	-	-	-	50	20	50	20
SEC	Lab/Practical	120204	Industrial Chemistry Lab 2 (Chemistry Lab Operations and Safety Measures)	2	4	-	-	50	20	50	20
AEC - English	Theory		Refer University basket	1	1						
AEC –MIL	Theory		Refer University basket	1	1						
IKS-Generic	Theory		Refer University basket	2	2						
VEC	Theory		Refer University basket	2	2						
CC	Outdoor		Separate SOP will be released	2	4						
TOTAL				22	30						

TLE Scheme for FIRST YEAR: SEMESTER – II (Level 4.5)

The Vertical	Type of the Course	Course Code	Course Title	Credits	Workload	Theory/Practical				Theory/Pract (Total)	
						External		Internal		Max. Marks	Min. Marks
						Max. Marks	Min. Marks	Max. Marks	Min. Marks		
Major / Minor	Theory	120205	Fuels and Energy Balance	2	2	30	9	20	6	50	20
	Lab/Practical	120206	Industrial Chemistry Lab 3	2	4	25	10	25	10	50	20
Major / Minor	Theory		-	2	2	30	9	20	6	50	20
	Lab/Practical		-	2	4	25	10	25	10	50	20
Generic/ Open Elective	Theory	120207	Cleaning Products II	2	2	30	9	20	6	50	20
	Theory	120208	Herbal Cosmetics II	2	2	30	9	20	6	50	20
VSC	Lab/Practical	120209	Industrial Chemistry Lab 4 (Stoichiometry)	2	4	-	-	50	20	50	20
SEC	Lab/Practical	120210	Industrial Chemistry Lab 5 (Formulation of Cleaning Products)	2	4	-	-	50	20	50	20
AEC - English			Refer University basket	1	1	-	-	50	20	50	20
AEC –MIL			Refer University basket	1	1	-	-	50	20	50	20
VEC			Refer University basket	2	2						
CC			Separate SOP will be released	2	4						
TOTAL				22	32						

*** Important:**

- VSC Should be Complementary to Major/Minor
- SEC has to be selected from the Basket Provided by University, from the same Faculty/Discipline of the Major/Minor

TLE Scheme for SECOND YEAR: SEMESTER – III (Level 5.0)

Subject	The Vertical	Course Code	Course Title	Credits	Workload	Theory/Practical				Theory/Pract (Total)	
						External		Internal			
						Max. Marks	Min. Marks	Max. Marks	Min. Marks	Max. Marks	Min. Marks
Industrial Chemistry	Major-T	120211	Mass Transfer Operations	2	2	30	9	20	6	50	20
Industrial Chemistry	Major-T	120212	Unit Operations	2	2	30	9	20	6	50	20
Industrial Chemistry	IKS-T	120213	IKS in Industrial Chemistry	2	2	30	9	20	6	50	20
Industrial Chemistry	Major-P	120214	Industrial Chemistry Lab 6	2	4	25	10	25	10	50	20
Industrial Chemistry	Minor-T	120215	Minor Industrial Chemistry 1	2	2	30	9	20	6	50	20
Industrial Chemistry	Minor-P	120216	Minor Industrial Chemistry Lab 7	2	4	25	10	25	10	50	20
Industrial Chemistry	GOEC-T	120217	Green Chemistry Approaches in Agro-Formulations	2	2	30	9	20	6	50	20
Industrial Chemistry	VSC-P	120218	Industrial Chemistry Lab -8	2	4	-	-	50	20	50	20
Industrial Chemistry	FP/CES	120219	Industrial Chemistry Lab 9 (FP / CES in Industrial Chemistry-I)	2	4	-	-	50	20	50	20
Industrial Chemistry	CC		Separate SOP will be released	2	4	-	-	50	20	50	20

Important: * VSC Should be Complementary to Major

** SEC has to be selected from the Basket Provided by University, from the same Faculty/Discipline of the Major/Minor

TLE Scheme for SECOND YEAR: SEMESTER – IV (Level 5.0)

Subject	The Vertical	Course Code	Course Title	Credits	Workload	Theory/Practical				Theory/Pract	
						External		Internal		(Total)	
						Max. Marks	Min. Marks	Max. Marks	Min. Marks	Max. Marks	Min. Marks
Industrial Chemistry	Major-T	120220	Unit Processes I	2	2	30	9	20	6	50	20
Industrial Chemistry	Major-T	120221	Process Equipment’s and Solid Waste Management	2	2	30	9	20	6	50	20
Industrial Chemistry	Major-T*	120229*	Unit Processes II	2	2	30	9	20	6	50	20
Industrial Chemistry	Major-P	120222	Industrial Chemistry Lab 10	2	4	25	10	25	10	50	20
Industrial Chemistry	Minor-T	120223	Minor Industrial Chemistry 2	2	2	30	9	20	6	50	20
Industrial Chemistry	Minor-P	120224	Minor Industrial Chemistry Lab 11	2	4	25	10	25	10	50	20
Industrial Chemistry	GOEC-T	120225	Natural and Eco-friendly Dyes	2	2	30	9	20	6	50	20
Industrial Chemistry	VSC-P	120226	Industrial Chemistry Lab 12	2	4	-	-	50	20	50	20
Industrial Chemistry	SEC-P [#]	120227	Industrial Chemistry Lab 13	2	4	-	-	50	20	50	20
Industrial Chemistry	FP/CES	120228	Industrial Chemistry Lab 14 (FP/CES in Industrial Chemistry-II)	2	4	-	-	50	20	50	20
Industrial Chemistry	CC		Separate SOP shall be consulted from University website	2	4	-	-	50	20	50	20

*** To be implemented w.e.f. academic session 2026-27**

- Only applicable up to academic session 2025-26

Important: VSC Should be Complementary to Major and SEC has to be selected from the Basket Provided by University, from the same Faculty/Discipline of the Major/Minor

TLE Scheme for THIRD YEAR: SEMESTER – V (Level 5.5)

Level	The Vertical	Course Code	Course Title	Credits	Workload	Theory/Practical Marks				Theory/Pract (Total) Marks	
						External		Internal			
						Max.	Min.	Max.	Min.	Max.	Min.
5.5	Major-T	120230	Material Chemistry	2	2	30	9	20	6	50	20
5.5	Major-T	120231	Industrial Pollution	2	2	30	9	20	6	50	20
5.5	Major-T	120232	Heavy and Fine Chemicals	2	2	30	9	20	6	50	20
5.5	Major-P	120233	Industrial Chemistry Lab 15	2	4	25	10	25	10	50	20
5.5	Major-Elective T1	120234	Elective Industrial Chemistry-1	2	2	30	9	20	6	50	20
5.5	Major-Elective P1	120235	Industrial Chemistry Lab 16 A (Elective Industrial Chemistry-1)	2	4	25	10	25	10	50	20
OR											
5.5	Major-Elective T2	120236	Elective Industrial Chemistry-2	2	2	30	9	20	6	50	20
5.5	Major-Elective P2	120237	Industrial Chemistry Lab 16 B (Elective Industrial Chemistry-2)	2	4	25	10	25	10	50	20
5.5	Minor-T	120238	Minor Industrial Chemistry-3	2	2	30	9	20	6	50	20
5.5	Minor-P	120239	Minor Industrial Chemistry Lab 17	2	4	25	10	25	10	50	20
5.5	VSC-P	120240	Industrial Chemistry Lab -18 VSC (Industrial Materials and Analysis Laboratory)	2	4	-	-	50	20	50	20
5.5	SEC-P	120241	Industrial Chemistry Lab 19 SEC (Process Operations and Analytical Skills Development)	2	4	-	-	50	20	50	20
5.5	FP/CEP	120242	Industrial Chemistry Lab 20 (FP/ CES in Industrial Chemistry III)	2	4	-	-	50	20	50	20
5.5	Non Credit		Foundation of Artificial Intelligence	NC	2			30+20	9+6	50	20

Important:

- **VSC Should be Complementary to Major**
- **SEC must be selected from the Basket Provided by University, from the same Faculty/Discipline of the Major/Minor**
- As per Sant Gadge Baba Amravati University, Amravati Extra-Ordinary Notification No. No. 241/2025 Dated 24/12/2025 “Foundation of Artificial Intelligence” is the mandatory **Non Credit Course** compulsory course for all the UG students in fifth semester of all undergraduate programs of all faculties in Sant Gadge Baba Amravati University, Amravati to earn their degree
- NC is Non Credit Course
- Students must select **Any One** of the Major-Elective Courses (T1 to T2) with respective Practical Course in Semester V.

TLE Scheme for THIRD YEAR: SEMESTER – VI (Level 5.5)

Level	The Vertical	Course Code	Course Title	Credits	Workload	Theory/Practical Marks				Theory/Pract (Total) Marks	
						External		Internal		Max.	Min.
						Max.	Min.	Max.	Min.		
5.5	Major-T	120243	Industrial Safety and Cost Estimation	2	2	30	9	20	6	50	20
5.5	Major-T	120244	Chromatography	2	2	30	9	20	6	50	20
5.5	Major-T	120245	Paper and Pulp	2	2	30	9	20	6	50	20
5.5	Major-P	120246	Industrial Chemistry Lab 21	2	4	25	10	25	10	50	20
5.5	Major-Elective T1	120247	Elective Industrial Chemistry 3 (Green Chemistry and Polymers)	2	2	30	9	20	6	50	20
5.5	Major-Elective P1	120248	Industrial Chemistry Lab 22 A	2	4	25	10	25	10	50	20
OR											
5.5	Major-Elective T2	120249	Elective Industrial Chemistry 4 (Instrumentation Techniques)	2	2	30	9	20	6	50	20
5.5	Major-Elective P2	120250	Industrial Chemistry Lab 22 B	2	4	25	10	25	10	50	20
5.5	Minor-T	120251	Minor Industrial Chemistry 4	2	2	30	9	20	6	50	20
5.5	Minor-P	120252	Minor Industrial Chemistry Lab 23	2	4	25	10	25	10	50	20
5.5	VSC-P	120253	Industrial Chemistry Lab 24 VSC	2	4	-	-	50	20	50	20
5.5	Intern/Apprenticeship	120254	FRS Lab 25 Internship /Apprenticeship/ OJT	4	8	-	-	50	20	50	20

Important:

- VSC Should be Complementary to Major has to be selected from the Basket Provided by University, from the same Faculty/Discipline of the Major/Minor
- **Students** must select **Any One** of the Major-Elective Courses (T1 to T2) with respective Practical Course in Semester VI.