

SANT GADGE BABA AMRAVATI UNIVERSITY, AMRAVATI



THREE-YEAR UNDERGRADUATE PROGRAMME

Bachelor of Science (B.Sc.)

Subject: PETROCHEMICAL SCIENCE

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 (Petrochemical Science) (Level 4.5)

(As per uniform NEP Scheme)

The Vertical	Type of Course	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
Major / Minor	Theory	128200	Basic Concept in Petro-Chemistry	2	2	30	9	20	6	50	20
	Lab/Practical	128201	Basic techniques in Petrochemical Science	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	128202	Introduction of Petroleum and Their Uses	2	2	30	9	20	6	50	20
	Theory	128203	Introduction of Petroleum origin and exploration	2	2	30	9	20	6	50	20
VSC	-	-	-	-	-	-	-	50	20	50	20
SEC	Lab/Practical	128204	Calibration and standardization	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	128205	Exploration and Classification of Petroleum	2	2	30	9	20	6	50	20
	Lab/Practical	128206	Identification of various Petroleum tests	2	4	30	9	20	6	50	20
Major / Minor	Theory		-	2	2	25	10	25	10	50	20
	Lab/Practical		-	2	4	30	9	20	6	50	20
Generic/ Open Elective	Theory	128207	Introduction of Petrochemical and their Uses	2	2	25	10	25	10	50	20
	Theory	128208	Introduction to production of Synthesis gas and their uses	2	2	30	9	20	6	50	20
VSC	Lab/Practical	128209	Science Laboratory practices	2	4	-	-	50	20	50	20
SEC	Lab/Practical	128210	Basic Fuel Analysis	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
Petrochemical Science	Major-T	128211	Quality Monitoring of petroleum product and Overview of Petrochemical industry and feedstock’s	2	2	30	9	20	6	50	20
Petrochemical Science	Major-T	128212	Basic Operation in Petrochemical industries	2	2	30	9	20	6	50	20
Petrochemical Science	IKS-T	128213	Indian knowledge System in Petrochemical Industries.	2	2	30	9	20	6	50	20
Petrochemical Science	Major-P	128214	Identification of various Petroleum Products test.	2	4	25	10	25	10	50	20
Petrochemical Science	Minor-T	128215	Petroleum laboratory test and introduction to petrochemical industries and raw material	2	2	30	9	20	6	50	20
Petrochemical Science	Minor-P	128216	Petroleum Products Tests	2	4	25	10	25	10	50	20
Petrochemical Science	GOEC-T	128217	Overview of Petroleum and Petrochemical	2	2	30	9	20	6	50	20
Petrochemical Science	VSC-P	128218	Basic Operation and Safety measures in Laboratory	2	4	-	-	50	20	50	20
Petrochemical Science	FP/CES	128219	Field Project/ Community Engagement Services Petrochemical Science Lab 09	2	4	-	-	50	20	50	20
Petrochemical Science	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 (Total)	
						External		Internal		Max. Marks	Min. Marks
						Max. Marks	Min. Marks	Max. Marks	Min. Marks		
Petrochemical Science	Major-T	128220	Cracking and Reforming of Petroleum-I	2	2	30	9	20	6	50	20
Petrochemical Science	Major-T	128221	Cracking and Reforming of Petroleum-I	2	2	30	9	20	6	50	20
Petrochemical Science	Major-T*	128229*	Rebuilding of Hydrocarbon/Extraction/ Corrosion	2	2	30	9	20	6	50	20
Petrochemical Science	Major-P	128225	Chemical based on some Paraffin and Olefin	2	4	25	10	25	10	50	20
Petrochemical Science	Minor-T	128226	Petroleum Geology	2	2	30	9	20	6	50	20
Petrochemical Science	Minor-P	128227#	Fundamental of Titrimetric Analysis	2	4	25	10	25	10	50	20
Petrochemical Science	GOEC-T	128225	Chemical based on some Paraffin and Olefin	2	2	30	9	20	6	50	20
Petrochemical Science	VSC-P	128226	Petroleum Geology	2	4	-	-	50	20	50	20
Petrochemical Science	SEC-P#	128227#	Fundamental of Titrimetric Analysis	2	4	-	-	50	20	50	20
Petrochemical Science	FP/CES	128228	Petrochemical science Lab 14	2	4	-	-	50	20	50	20
Petrochemical Science	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	128230	Petrochemicals and their Derivative- I	2	2	30	9	20	6	50	20
5.5	Major-T	128231	Petrochemicals and their Derivative- II	2	2	30	9	20	6	50	20
5.5	Major-T	128232	Third Generation Petrochemicals	2	2	30	9	20	6	50	20
5.5	Major-P	128233	Petrochemical Lab. 15 (Preparation of Dyes and Soaps)	2	4	25	10	25	10	50	20
5.5	Major-Elective T1	128234	Polymers from Petroleum (Basic concept in Polymerization)	2	2	30	9	20	6	50	20
5.5	Major-Elective P1	128235	Petrochemical Science Lab 16 A (Monomer Synthesis)	2	4	25	10	25	10	50	20
OR											
5.5	Major-Elective T2	128236	Instrumental techniques and Equipment for Petroleum and Petrochemical	2	2	30	9	20	6	50	20
5.5	Major-Elective P2	128237	Petrochemical Science Lab-16 B (Separation technique)	2	4	25	10	25	10	50	20
5.5	Minor-T	128238	Introduction to Petrochemicals and their Derivative	2	2	30	9	20	6	50	20
5.5	Minor-P	128239	Petrochemical Lab. 17 (Lab synthesis of dyes and sops)	2	4	25	10	25	10	50	20
5.5	VSC-P	128240	(Petrochemical Lab. 18) Basic Experiment in daily used products	2	4	-	-	50	20	50	20
5.5	SEC-P	128241	Petrochemical Lab. 19 (Titrimetric Analysis)	2	4	-	-	50	20	50	20
5.5	FP/CEP	128242	Petrochemical Lab. 20 (FP/ CES in Petrochemical Science - 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	128243	Petroleum Specialty Products and Catalyst in Petroleum and Petrochemical industries	2	2	30	9	20	6	50	20
5.5	Major-T	128244	Pollution and Future Fuels	2	2	30	9	20	6	50	20
5.5	Major-T			2	2	30	9	20	6	50	20
5.5	Major-P	128245	Operations and Future in Petro-Chemical Industries	2	4	25	10	25	10	50	20
5.5	Major-Elective T1			2	2	30	9	20	6	50	20
5.5	Major-Elective P1	128246	Petrochemical Lab. 21 (Lab. Tests for Lube oil, Bitumen, Grease and Wax/ Water Analysis)	2	4	25	10	25	10	50	20
OR											
5.5	Major-Elective T2	128249	Petroleum and Petrochemical Products Characterization Methods	2	2	30	9	20	6	50	20
5.5	Major-Elective P2	128250	(Petrochemical Lab. 22B) Experiment based on Spectroscopy	2	4	25	10	25	10	50	20
5.5	Minor-T	128251	Non energy Petroleum/ Pollution/ Future fuels	2	2	30	9	20	6	50	20
5.5	Minor-P	128252	(Petrochemical Lab. 23) Waste Water and non-energy Petroleum Analysis	2	4	25	10	25	10	50	20
5.5	VSC-P	128253	(Petrochemical Lab. 24) PCH Lab.	2	4	-	-	50	20	50	20
5.5	Intern/Apprenticeship	128254	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.