

SANT GADGE BABA AMRAVATI UNIVERSITY, AMRAVATI



THREE-YEAR UNDERGRADUATE PROGRAMME

Bachelor of Science (B.Sc.)

Subject: MATHEMATICS

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) 6	2	2		0	0	2	0	6	
E(i)	Ability Enhancement Courses (AEC) (English + Modern Indian Language) 8	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	4
	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						
	Vertical Type			Semester VII	Semester VIII	
	Major (Offered at Three-year UG Programme)	Mandatory		8-10 (2*4+2 or 2*4)	8-10 (2*4+2 or 2*4)	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 (Mathematics) (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 -1	126200	Algebra and Calculus	2	2	30	9	20	6	50	20
	Lab/Practical -1	126201	Practical Based on Algebra and Calculus	2	4	25	10	25	10	50	20
Minor / Major	Theory -1	-	-	2	2	30	9	20	6	50	20
	Lab/Practical -1	-	-	2	4	25	10	25	10	50	20
GOEC	Theory - 1	126202	Foundation of Mathematics	2	2	30	9	20	6	50	20
GOEC	Theory - 2	126203	Financial Mathematics – I	2	2	30	9	20	6	50	20
VSC	-	-	-	-	-	-	-	50	20	50	20
SEC	Lab/Practical - 2	126204	Applied Mathematics	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 - 2	126205	Vector Analysis and Geometry	2	2	30	9	20	6	50	20
	Lab/Practical - 3	126206	Practical Based on Vector Analysis and Geometry	2	4	25	10	25	10	50	20
Minor / Major	Theory - 2	-	-	2	2	30	9	20	6	50	20
	Lab/Practical -3	-	-	2	4	25	10	25	10	50	20
GOEC	Theory - 3	126207	Numerical Ability – I	2	2	30	9	20	6	50	20
GOEC	Theory – 4	126208	Mathematics for Social Sciences	2	2	30	9	20	6	50	20
VSC	Lab/Practical - 4	126209	Mathematics in MS-Office	2	4	-	-	50	20	50	20
SEC	Lab/Practical - 5	126210	Transportation and Game Theory	2	4	-	-	50	20	50	20
AEC - English			Refer University basket	1	1	-	-	-	-	-	-
AEC –MIL			Refer University basket	1	1	-	-	-	-	-	-
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)

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	Major-Th – 3	126211	Trigonometric Series and Calculus	2	2	30	9	20	6	50	20
Major	Major-Th - 4	126212	Advanced Calculus	2	2	30	9	20	6	50	20
Major	Major-Practical - 6	126213	Practical Based on Trigonometric Series and Calculus & Advanced Calculus	2	4	25	10	25	10	50	20
Major	IKS-Theory	126214	Indian Knowledge System in Mathematics	2	2	30	9	20	6	50	20
Minor	Minor-Th - 1	126215	Integral Calculus and Trigonometric Series	2	2	30	9	20	6	50	20
Minor	Minor-Practical - 7	126216	Practical Based on Integral Calculus and Trigonometric Series	2	4	25	10	25	10	50	20
GOEC	GOEC-Th - 5	126217	Reasoning Ability	2	2	30	9	20	6	50	20
VSC	VSC-Pract. - 8	126218	Mathematics for Information Technology	2	4	-	-	50	20	50	20
AEC - English		--	Refer University basket	1	1	--	--	--	--	--	--
AEC –MIL		--	Refer University basket	1	1	--	--	--	--	--	--
FP/CES	FP/CES	126227	Mathematics Lab (FP/ CEP in Mathematics - I)	2	4	-	-	50	20	50	20
CC	CC	--	Separate SOP shall be consulted from university website	2	4	-	-	--	--	--	--
TOTAL				22	32						

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)

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	Major-Th – 5	126219	Ordinary Differential Equations	2	2	30	9	20	6	50	20		
Major	Major-Th – 6	126220	Elements of Algebra	2	2	30	9	20	6	50	20		
Major	Major-Th* - 7	126229	Solid Coordinate Geometry	2	2	30	9	20	6	50	20		
Major	Major-Practical - 9	126221	Practical Based on Ordinary Differential Equations and Elements of Algebra	2	4	25	10	25	10	50	20		
Minor	Minor-Th - 2	126222	Foundations of Integral and Differential Equations	2	2	30	9	20	6	50	20		
Minor	Minor-Practical - 10	126223	Practical Based on Foundations of Integral and Differential Equations	2	4	25	10	25	10	50	20		
GOEC	GOEC-Th. - 6	126224	Competitive Mathematics	2	2	30	9	20	6	50	20		
VSC	VSC-Practical - 11	126225	Business Calculus	2	4	-	-	50	20	50	20		
SEC	SEC-P# Practical - 12	126226	Practical Based on Equation Editor (Discontinued from 2026-27)	2	4	-	-	50	20	50	20		
AEC - English		--	Refer University basket	1	1	-	-	-	-	-	-		
AEC – MIL		--	Refer University basket	1	1	-	-	-	-	-	-		
FP/CES	FP/CES	126228	Mathematics Lab (FP/ CEP in Mathematics - II)	2	4	-	-	50	20	50	20		
CC	CC		Separate SOP shall be consulted from university website	2	4	-	-	-	-	-	-		
TOTAL				22	32								

*** 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

Three-Year B.Sc. Mathematics Syllabus as per NEP 2020

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

The Vertical	Type of the Course	Course Code	Course Title	Credits	Workload	Theory/Practical Marks				Theory/Pract (Total) Marks	
						External		Internal			
						Max.	Min.	Max.	Min.	Max.	Min.
Major	Major-Theory - 8	126230	Mathematical Analysis	2	2	30	9	20	6	50	20
Major	Major-Theory - 9	126231	Partial Differential Equations	2	2	30	9	20	6	50	20
Major	Major-Theory - 10	126232	Mathematical Methods	2	2	30	9	20	6	50	20
Major	Major-Practical - 13	126233	Practical Based on Mathematical Analysis and Partial Differential Equations	2	4	25	10	25	10	50	20
Major	Major-Elective Th1	126234	Classical Mechanics	2	2	30	9	20	6	50	20
Major	Major-Elective Practical - 14	126235	Practical Based on Classical Mechanics	2	4	25	10	25	10	50	20
Major	Major-Elective Th2	126236	Number Theory	2	2	30	9	20	6	50	20
Major	Major-Elective Practical – 15	126237	Practical Based on Number Theory	2	4	25	10	25	10	50	20
Minor	Minor-Theory – 3	126238	Introduction to Transform Technique and Algebra	2	2	30	9	20	6	50	20
Minor	Minor-Practical - 16	126239	Practical Based on Introduction to Transform Technique and Algebra	2	4	25	10	25	10	50	20
VSC	VSC-Practical – 17	126240	Mathematics in MS- Excel	2	4	-	-	50	20	50	20
SEC	SEC-Practical – 18	126241	Practical on Mathematical Methods (From Session 2026-2027 Onwards)	2	4	-	-	50	20	50	20
FP/CEP	FP/CEP	126242	Mathematics Lab (Field Project / Community Engagement Program)	2	4	-	-	50	20	50	20
Non-Credit	Non-Credit		Foundation of Artificial Intelligence	NC	2	30	9	20	6	50	20
TOTAL				22	36						

Note:- Student Should select either Major Elective Th 1 (126234), Major Elective Practical 14 (126235) **OR** Major Elective Th 2 (126236), Major Elective Practical 15 (126237) in Semester V

Important Note:

- **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.

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

The Vertical	Type of the Course	Course Code	Course Title	Credits	Workload	Theory/Practical Marks				Theory/Pract (Total) Marks	
						External		Internal			
						Max.	Min.	Max.	Min.	Max.	Min.
Major	Major-Theory – 11	126243	Linear Algebra	2	2	30	9	20	6	50	20
Major	Major-Theory - 12	126244	Advanced Analytical Algebra	2	2	30	9	20	6	50	20
Major	Major-Theory - 13	126245	Integral Transform Methods	2	2	30	9	20	6	50	20
Major	Major-Practical - 19	126246	Practical Based on Linear Algebra, Advanced Analytical Algebra and Integral Transform Methods	2	4	25	10	25	10	50	20
Major	Major-Elective Th 3	126247	Graph Theory	2	2	30	9	20	6	50	20
Major	Major-Elective Practical - 20	126248	Practical Based on Graph Theory	2	4	25	10	25	10	50	20
Major	Major-Elective Th 4	126249	Special Theory of Relativity	2	2	30	9	20	6	50	20
Major	Major-Elective Practical - 21	126250	Practical Based on Special Theory of Relativity	2	4	25	10	25	10	50	20
Minor	Minor-Theory - 4	126251	Complex Calculus and Partial Differential Equations	2	2	30	9	20	6	50	20
Minor	Minor-Practical - 22	126252	Practical Based on Complex Calculus and Partial Differential Equations	2	4	30	9	20	6	50	20
VSC	VSC-Practical - 23	126253	Math Type – Equation Editor	2	4	-	-	50	20	50	20
CC	Internship/Apprenticeship	126254	Mathematics Lab (Internship / Apprenticeship)	4	8	-	-				--
TOTAL				22	34						

Note:- Student Should select either Major Elective Th 3 (126247), Major Elective Practical 20 (126248) **OR** Major Elective Th 4 (126249), Major Elective Practical 21 (126250) in Semester VI

Important Note: 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

SWAYAM/NPTEL Courses under NEP 2020

Sr. No.	Semester	Course Title	Course Code*	Credits**	Institution	Agency	Enrollment Ends	Link to Enroll
1	I	Basic Mathematics	nou26_ma08	4	Indira Gandhi National Open University, New Delhi	IGNOU	31 August 2026	https://onlinecourses.swayam2.ac.in/e-learning/preview/nou26_ma08
2	I	Algebra 1: Foundations	noc26_ma116	4	IIT Palakkad	NPTEL	27 July 2026	https://onlinecourses.nptel.ac.in/e-learning/preview/noc26_ma116
3	II	Engineering Mathematics - I	noc26_ma133	4	IIT Kharagpur	NPTEL	27 July 2026	https://onlinecourses.nptel.ac.in/e-learning/preview/noc26_ma133
4	II	A Basic Course in Number Theory	noc26_ma102	4	IIT Bombay	NPTEL	27 July 2026	https://onlinecourses.nptel.ac.in/e-learning/preview/noc26_ma102
5	III	Advanced Calculus for Engineers	noc26_ma130	4	IIT Kharagpur	NPTEL	27 Jul 2026	https://onlinecourses.nptel.ac.in/e-learning/preview/noc26_ma130
6	III	Classical Mechanics-I	ini26_ph03	4	Banaras Hindu University	SWAYAM	31 Aug 2026	https://onlinecourses.swayam2.ac.in/e-learning/preview/ini26_ph03
7	IV	Advanced Theory of Ordinary Differential Equations	noc26_ma132	4	IIT Kharagpur	NPTEL	27 July 2026	https://onlinecourses.nptel.ac.in/e-learning/preview/noc26_ma132
8	IV	Advanced Partial Differential Equations - (Part I: Distributions and Sobolev spaces)	noc26_ma86	3	IISc Bangalore	NPTEL	27 July 2026	https://onlinecourses.nptel.ac.in/e-learning/preview/noc26_ma86
9	V	Discrete Mathematics	cec26_ma14	2	New Delhi	CEC	31 August 2026	https://onlinecourses.swayam2.ac.in/e-learning/preview/cec26_ma14
10	VI	Essentials of Topology	noc26_ma134	4	IIT Kharagpur	NPTEL	27 July 2026	https://onlinecourses.nptel.ac.in/e-learning/preview/noc26_ma134

* Course codes may vary according to the year and session of enrollment

** Credits will be awarded as per provisions of the SWAYAM/NPTEL at the time of actual enrollment.

Instructions for Enrollment in SWAYAM/NPTEL Courses under NEP 2020

All students of **B.Sc. with Mathematics as Major or Minor** of all semesters are encouraged to enroll in suitable SWAYAM/NPTEL online courses to enhance their academic knowledge, practical skills, and employability.

General Instructions

1. Students may choose any course of their interest listed in table above for specific semester.
2. Before enrollment, students must ensure that they have an active Academic Bank of Credits (ABC) ID. The same ABC ID should be used while registering for the selected SWAYAM/NPTEL course so that earned credits can be deposited in the Academic Bank of Credits.
3. Students should carefully read the course details including duration, eligibility, syllabus, examination schedule, and credit structure before enrolling.
4. Merely enrolling in a course does not make a student eligible for academic credits. Students must:
Complete the course requirements, appear for the proctored examination, and successfully pass the examination as per the norms prescribed by SWAYAM/NPTEL.
5. Credits will be awarded only after successful completion and certification of the course by the concerned agency.
6. Every student must submit the details of the enrolled course to the Department of Mathematics immediately after registration.
7. Submission of enrollment details to the Department is mandatory to facilitate record maintenance and compliance with university requirements regarding credit transfer and academic documentation.
8. Students are advised to preserve all course-related documents, including Enrollment confirmation, Course progress records, Examination registration receipt, Score card, Final certificate.
9. Students shall be responsible for timely registration for the examination, payment of examination fees (if applicable), and completion of all course requirements within the stipulated period.
10. The department shall not be responsible for missed deadlines, incomplete registrations, examination non-appearance, or failure to satisfy the certification requirements of the concerned SWAYAM/NPTEL course.
11. After successful completion of the course, students must submit a copy of the course certificate and score card to the Department of Mathematics for further processing and reporting to the University.