Sant Gadge Baba Amravati University, Amravati

Scheme of Implementation for

Four Year Undergraduate Degree Programme in

Engineering and Technology

B. E. In CIVIL ENGINEERING

In the faculty of

Science and Technology

ACADEMIC EVALUATION SCHEME/CREDIT SYSTEM

Year: 2024-25

(Scheme of Teaching, Learning, Examination & Evaluation w.e.f. 2024-2025 and onwards)

	Scheme for First Year Four Year Undergraduate Engineering Degree Programme Semester–I/II [Common for all branches]												
SrNo.	**CourseName**	**Code**	**Course Plan per Week (Hrs.)**				**Credits**	**Theory Evaluation**		**Practical Evaluation**		**Total**	**ESE Time Hrs.)**
			L	**P**	**T**	**Hrs.**		**IE**	**ESE**	**INT**	**EXT**		
	CoreCourses												
1	Applied Mathematics-I (BSC)	1AL100BS	3	0	0	3	3	40	60	-	-	100	3.00 Hrs.
2	Engineering Physics (BSC)	1AL101BS	3	0	0	3	3	40	60	-	-	100	3.00 Hrs.
3	Computer Programming (ESC)	1AL102ES	3	0	0	3	3	40	60	-	-	100	3.00 Hrs.
4	Engineering Mechanics (ESC)	1AL103ES	3	0	0	3	3	40	60	-	-	100	3.00 Hrs.
	Laboratory Courses												
5	Engineering Physics Lab (BSC)	1AL104BS	0	2	0	2	1	-	-	25	25	50	-
6	Computer Programming Lab (ESC)	1AL105ES	0	2	0	2	1	-	-	25	25	50	-
7	Engineering Mechanics Lab (ESC)	1AL106ES	0	2	0	2	1	-	-	25	25	50	-
8	Workshop (ESC)	1AL107ES	0	2	0	2	1	-	-	25	25	50	-
	Vocational and Skill Enhancement Courses(VSEC)												
9	Surveying Skills Lab	1CE108VS	1	2	0	3	2	-	-	50	--	50	-
	Ability Enhancement Courses(AEC)												
10	Professional Communication	1AL109AE	1	2	0	3	2	-	-	25	25	50	-
	Co-curricular Course(CC)												
11	Co-curricular Course (CC)	1AL110CC	0	4	0	4	2	-	-	50	--	50	-
	TOTAL		14	16	0	30	**22**	-	-	--	--	**750**	-

L: Lecture P: Practical T:Tutorial ESE: EndSemester Exam IE: Internal Evaluation INT:Internal EXT:External

Note: Six hours per week are allotted for continuous evaluation process for the above subjects. (Total contact hours per week = 34 Hours)

	Scheme for First Year Four Year Undergraduate Engineering Degree Programme Semester–I/II [Common for all branches]												
SrNo.	**CourseName**	**Code**	**Course Plan per Week (Hrs.)**				**Credits**	**Theory Evaluation**		**Practical Evaluation**		**Total**	**ESETime Hrs.)**
			L	**P**	**T**	**Hrs.**		**IE**	**ESE**	**INT**	**EXT**		
	CoreCourses												
1	Applied Mathematics-II (BSC)	1AL111BS	3	0	0	3	3	40	60	-	-	100	3.00 Hrs.
2	Engineering Chemistry (BSC)	1AL112BS	3	0	0	3	3	40	60	-	-	100	3.00 Hrs.
3	Basic Electrical Engineering (ESC)	1AL113ES	3	0	0	3	3	40	60	-	-	100	3.00 Hrs.
4	Engineering Graphics (ESC)	1AL114ES	2	0	0	2	2	40	60	-	-	100	3.00 Hrs.
	LaboratoryCourses												
5	Engineering Chemistry Lab (BSC)	1AL115BS	0	2	0	2	1	-	-	25	25	50	-
6	Basic Electrical Engineering Lab (ESC)	1AL116ES	0	2	0	2	1	-	-	25	25	50	-
7	Engineering Graphics Lab (ESC)	1AL117ES	0	2	0	2	1	-	-	25	25	50	-
	Vocational and Skill Enhancement Courses (VSEC)												
8	Safety Practices at Construction Site	2CE118VS	1	2	0	3	2	-	-	50	--	50	-
	Programme Core Course(PCC)												
9	Fundamentals of Civil Engineering (PCC)	2CE119PC	2	0	0	2	2	20	30	-	-	50	2.00 Hrs.
	Indian Knowledge System(IKS)												
10	Indian Traditional Knowledge	2AL120IK	2	0	0	2	2	20	30	-	-	50	2.00 Hrs.
	Co-curricular Course(CC)												
11	Co-curricular Course (CC)	2AL121CC	0	4	0	4	2	-	-	50	-	50	-
	TOTAL		16	12	0	28	**22**	-	-	-	-	**750**	-

L: Lecture P: Practical T: Tutorial ESE: End Semester Exam IE: Internal Evaluation INT: Internal EXT: External

Note: Six hours per week are allotted for continuous evaluation process for the above subjects. (Total contact hours per week = 34 Hours)

Scheme for Multiple Entry and Exit

Exit option-1(L4.5):Award of UG Certificate in Major with 44 credits and an additional 8 credits			
Exit Courses			
1	Materials and Civil Engineering	Online certification Course	4
2	Introduction to Construction Equipments	Online certification Course	4
OR			
3	Internship at Industry	Two months (288-320 hours)	8

	Scheme for Second Year Four Year Undergraduate Engineering Degree Programme B.E. in CIVIL ENGINEERING (Semester-III)												
SrNo.	**CourseName**	**Code**	**Course Plan per Week (Hrs.)**				**Credits**	**Theory Evaluation**		**Practical Evaluation**		**Total**	**ESETime Hrs.)**
			L	**P**	**T**	**Hrs.**		**IE**	**ESE**	**INT**	**EXT**		
	CoreCourses												
1	Strength of Material	3CE200PC	3	0	0	3	3	40	60	-	-	100	3.00 Hrs.
2	Concrete Technology	3CE201PC	3	0	0	3	3	40	60	-	-	100	3.00 Hrs.
3	Building Construction & Materials	3CE202PC	3	0	0	3	3	40	60	-	-	100	3.00 Hrs.
	LaboratoryCourses												
4	Building Construction & Materials (Field Project)	3CE400EL	0	4	0	4	2	-	-	25	25	50	-
5	Strength of Material - Lab	3CE203PC	0	2	0	2	1	-	-	25	25	50	-
6	Concrete Technology - Lab	3CE204PC	0	2	0	2	1	-	-	25	25	50	-
	MultidisciplinaryMinor												
7	Multidisciplinary Minor–I*	3 -- 205MD	2	0	0	2	2	20	30	-	-	50	2.00 Hrs.
	Open Elective other than a particular Program												
8	Open Elective-I	3 --206OE	3	0	0	3	3	40	60	-	-	100	3.00 Hrs.
	HSSMC(Entrepreneurship/ Economics/ManagementCourse)												
9	Construction Management	3CE207EM	2	0	0	2	2	20	30	-	-	50	2.00 Hrs.
	ValueEducationCourse(VEC)												
10	Environmental Science	3SH208VE	2	0	0	2	2	20	30	-	-	50	2.00 Hrs.
	TOTAL		18	8	0	26	**22**	-	-	-	-	**700**	-

L: Lecture P: Practical T: Tutorial ESE: End Semester Exam IE: Internal Evaluation INT: Internal EXT: External

Note: Six hours per week are allotted for continuous evaluation process for the above subjects. (Total contact hours per week = 34 Hours)

Open Elective-I: i) Disaster Management ii) Water Resources Management iii) Air and Noise Pollution Control Engineering

***Please refer the list of Multidisciplinary Minor courses allocated separately**

	Scheme for Second Year Four Year Undergraduate Engineering Degree Programme B.E. in CIVIL ENGINEERING (Semester-IV)												
Sr No.	**Course Name**	**Code**	**Course Plan per Week (Hrs.)**				**Credits**	**Theory Evaluation**		**Practical Evaluation**		**Total**	**ESE Time Hrs.)**
			L	**P**	**T**	**Hrs.**		**IE**	**ESE**	**INT**	**EXT**		
	CoreCourses												
1	Surveying	4CE209PC	3	0	0	3	3	40	60	-	-	100	3.00 Hrs.
2	Transportation Engineering	4CE210PC	3	0	0	3	3	40	60	-	-	100	3.00 Hrs.
3	Building Planning, Designing	4CE211PC	2	0	0	2	2	40	60	-	-	100	3.00 Hrs.
	LaboratoryCourses												
4	Surveying - Lab	4CE212PC	0	2	0	2	1	-	-	25	25	50	-
5	Transportation Engineering - Lab	4CE213PC	0	2	0	2	1	-	-	25	25	50	-
	Multidisciplinary Minor												
6	Multidisciplinary Minor–II*	4 --214MD	2	0	0	2	2	20	30	-	-	50	2.00 Hrs.
	Vocational and Skill Enhancement Courses												
7	Computer Aided Planning Design	4CE215VS	1	2	0	3	2	-	-	50	-	50	-
	Open Elective other than a particular Program												
8	Open Elective-II	4 --216OE	2	0	0	2	2	20	30	-	-	50	2.00 Hrs.
	HSSMC(Entrepreneurship/ Economics/Management Course)												
9	Entrepreneurship in Civil Engineering	4CE217EM	2	0	0	2	2	20	30	-	-	50	2.00 Hrs.
	Ability Enhancement Course (AEC)												
10	Modern Indian Language	4SH218AE	2	0	0	2	2	-	-	25	25	50	-
	Value Education Course (VEC)												
11	Universal Human Values & Ethics	4SH219VE	2	0	0	2	2	20	30	-	-	50	2.00 Hrs.
	TOTAL		19	06	0	25	**22**	-	-	-	-	**700**	-

L: Lecture P: Practical T: Tutorial MSE: Mid Semester Exam ESE: End Semester Exam IE: Internal Evaluation INT: Internal EXT: External

Note: Six hours per week are allotted for continuous evaluation process for the above subjects. (Total contact hours per week = 34 Hours)

Open Elective-II: i) Fundamental of Vastushastra ii) Infrastructure Planning and Management iii) Principle of Management

***Please refer the list of Multidisciplinary Minor courses allocated separately**

Scheme for Multiple Entry and Exit

Exitoption-2 (L5.0): Award of UG Diploma in Major with 88 credits and an additional 8 credits			
Exit Courses			
1	Quantity Survey & its equipment's	Online certification Course	4
2	Fundamentals of Structural Analysis	Online certification Course	4
OR			
3	Internship at Industry	Two months(288-320 hours)	8

	Scheme for Third Year Four Year Undergraduate Engineering Degree Programme B.E. in CIVIL ENGINEERING(Semester-V)												
SrNo.	**CourseName**	**Code**	**Course Plan per Week (Hrs.)**				**Credits**	**Theory Evaluation**		**Practical Evaluation**		**Total**	**ESETime Hrs.)**
			L	**P**	**T**	**Hrs.**		**IE**	**ESE**	**INT**	**EXT**		
	CoreCourses												
1	Environmental Engineering	5CE220PC	3	0	0	3	3	40	60	-	-	100	3.00Hrs.
2	Geotechnical Engineering	5CE221PC	3	0	0	3	3	40	60	-	-	100	3.00Hrs.
3	Design of Reinforced Concrete Structure	5CE222PC	3	0	0	3	3	40	60	-	-	100	3.00Hrs.
4	Program Elective Course-I	5CE223PE	3	0	0	3	3	40	60	-	-	100	3.00Hrs.
	Laboratory Courses												
5	Environmental Engineering-Lab	5CE224PC	0	2	0	2	1	-	-	25	25	50	-
6	Geotechnical Engineering-Lab	5CE225PC	0	2	0	2	1	-	-	25	25	50	-
7	Design of Reinforced Concrete Structure-Lab	5CE226PC	0	2	0	2	1	-	-	25	25	50	-
	Multidisciplinary Minor												
8	Multidisciplinary Minor-III*	5--227MD	2	0	0	2	2	20	30	-	-	50	2.00Hrs
9	Multidisciplinary Minor-IV*	5--228MD	2	0	0	2	2	20	30	-	-	50	2.00Hrs
10	Multidisciplinary Minor Lab-I*	5--229ML	0	2	0	2	1	-	-	25	25	50	-
	Open Elective other than a particular Program												
11	Open Elective-III	5--230OE	2	0	0	2	2	20	30	-	-	50	2.00Hrs.
	TOTAL		18	08	0	26	**22**	-	-	-	-	**750**	-

L: Lecture P: Practical T: Tutorial ESE: End Semester Exam IE: Internal Evaluation INT: Internal EXT: External

Note: Six hours per week are allotted for continuous evaluation process for the above subjects. (Total contact hours per week = 34 Hours)

PEC-I: 1.Repair & Rehabilitation of Structure 2. Waste Water Treatment Technology 3.Highway Construction & Management

Open Elective-III: 1.Introduction to Earthquake Engineering 2.Green Building 3.Construction Safety Management

***Please refer the list of Multidisciplinary Minor courses allocated separately**

	Scheme for Third Year Four Year Undergraduate Engineering Degree Programme B.E. in CIVIL ENGINEERING(Semester-VI)												
SrNo.	**CourseName**	**Code**	**Course Plan per Week (Hrs.)**				**Credits**	**Theory Evaluation**		**Practical Evaluation**		**Total**	**ESETime Hrs.)**
			L	**P**	**T**	**Hrs.**		**IE**	**ESE**	**INT**	**EXT**		
	Core Courses												
1	Structural Analysis	6CE231PC	3	0	0	3	3	40	60	-	-	100	3.00Hrs.
2	Fluid Mechanics	6CE232PC	3	0	0	3	3	40	60	-	-	100	3.00Hrs.
3	Design of Steel Structure	6CE233PC	3	0	0	3	3	40	60	-	-	100	3.00Hrs.
4	Program Elective Course-II	6CE234PE	3	0	0	3	3	40	60	-	-	100	3.00Hrs.
5	Program Elective Course-III	6CE235PE	3	0	0	3	3	40	60	-	-	100	3.00Hrs.
	Laboratory Courses												
6	Computational Structural Analysis-Lab	6CE236PC	0	2	0	2	1	-	-	25	25	50	-
7	Fluid Mechanics-Lab	6CE237PC	0	2	0	2	1	-	-	25	25	50	-
8	Design of Steel Structure-Lab	6CE238PC	0	2	0	2	1	-	-	25	25	50	-
	Multidisciplinary Minor												
9	Multidisciplinary Minor-V*	6--239MD	2	0	0	2	2	20	30	-	-	50	2.00Hrs
	Vocational and Skill Enhancement Courses												
10	Non-Destructive Testing Methods	6CE240VS	1	2	0	3	2	-	-	50	-	50	-
	TOTAL		18	08	0	26	**22**	-	-	-	-	**750**	-

L: Lecture P: Practical T: Tutorial ESE: End Semester Exam IE: Internal Evaluation INT: InternalEXT: External

Note: Six hours per week are allotted for continuous evaluation process for the above subjects. (Total contact hours per week = 34 Hours)

PEC-II : 1.Advaned Construction Materials 2. Solid Waste Management 3.Airport Planning & Design

PEC-III: 1.Advanced Concrete Technology 2.Ground Improvement Techniques 3.Solid and Hazardous Waste Management

***Please refer the list of Multidisciplinary Minor courses allocated separately**

Scheme for Multiple Entry and Exit

Exit option-3(L 5.5): Award of UG Degree in Major with 132 credits and an additional 8 credits			
Exit Courses			
1	Estimation & Costing	Online certification Course	4
2	Sustainable Construction Methods	Online certification Course	4
OR			
3	Internship at Industry	Two months(288-320 hours)	8

	Scheme for Final Year Four Year Undergraduate Engineering Degree Programme B.E. in CIVIL ENGINEERING(Semester-VII)												
SrNo.	**CourseName**	**Code**	**Course Plan per Week (Hrs.)**				**Credits**	**Theory Evaluation**		**Practical Evaluation**		**Total**	**ESETime Hrs)**
			L	**P**	**T**	**Hrs.**		**IE**	**ESE**	**INT**	**EXT**		
	CoreCourses												
1	Engineering Economics, Estimation& Costing	7CE300PC	3	0	0	3	3	40	60	-	-	100	3.00Hrs.
2	Hydrology &Water Resources Engineering	7CE301PC	3	0	0	3	3	40	60	-	-	100	3.00Hrs.
3	Program Elective Course-IV	7CE302PE	3	0	0	3	3	40	60	-	-	100	3.00Hrs.
4	Program Elective Course-V	7CE303PE	3	0	0	3	3	40	60	-	-	100	3.00Hrs.
5	Program Elective Course-VI	7CE304PE	3	0	0	3	3	40	60	-	-	100	3.00Hrs.
	Laboratory Courses												
6	Engineering Economics, Estimation& Costing	7CE305PC	0	2	0	2	1	-	-	25	25	50	-
7	Hydrology & Water Resources Engineering	7CE306PC	0	2	0	2	1	-	-	25	25	50	-
	Multidisciplinary Minor												
8	Multidisciplinary Minor–VI*	7--307MD	2	0	0	2	2	20	30	-	-	50	2.00Hrs.
9	Multidisciplinary Minor Lab.–II*	7--308ML	0	2	0	2	1	-	-	25	25	50	.
	Project												
10	Project-Phase I#	7CE401PR	0	4	0	4	2	-	-	100	-	100	-
	TOTAL		17	10	0	27	**22**	-	-	-	-	**800**	-

L: Lecture P: Practical T: Tutorial ESE: End Semester Exam IE: Internal Evaluation INT: InternalEXT: External

Note: Six hours per week are allotted for continuous evaluation process for the above subjects. (Total contact hours per week = 34 Hours)

PEC-IV: 1.Intelligent Transportation System 2. Town Planning 3.Environmental Impact Assessment

PEC-V: 1. Advanced Structural Analysis 2. Construction Equipment's & automation 3.Advanced Surveying

PEC-VI: 1. Hydraulic Engineering 2. Contracts Management 3. Foundation Engineering

***Please refer the list of Multidisciplinary Minor courses allocated separately**

	Scheme for Final Year Four Year Undergraduate Engineering Degree Programme B.E. in CIVIL ENGINEERING (Semester-VIII)												
SrNo.	**CourseName**	**Code**	**Course Plan per Week (Hrs.)**				**Credits**	**Theory Evaluation**		**Practical Evaluation**		**Total**	**ESETime Hrs)**
			L	**P**	**T**	**Hrs.**		**IE**	**ESE**	**INT**	**EXT**		
	CoreCourses												
1	Research Methodology	8CE309RM	4*	-	-	4	4	40	60	-	-	100	3Hrs.
2	Industry Internship	8CE402EL	0	24	0	24	12	-	-	100	200	300	-
3	Project- Phase II	8CE403PR	0	4	0	4	2	-	-	50	50	100	-
	TOTAL		4	28	0	32	**18**	-	-	-	-	**500**	-

L: Lecture P: Practical T: Tutorial ESE: End Semester Exam IE: Internal Evaluation INT: InternalEXT: External
Note: Six hours per week are allotted for continuous evaluation process for the above subjects. (Total contact hours per week = 34 Hours)

***The course on Research Methodology may be completed by the student in online mode (Swayam, MOOC's, any other platform approved by AICTE OR on the LMS platform offered by the Institute)**

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Civil Engineering

Multi-Disciplinary Minor Courses (14 Credits)

Semester	Course Code	Course Type	Credits		Course name
			T	P	
III	3CE205MD	MDM-1	2	0	Introduction to civil Engineering
IV	4CE214MD	MDM-2	2	0	Water Purification and supply
V	5CE227MD	MDM-3	2	0	Building Construction and Planning
	5CE228MD	MDM-4	2	0	Property Acquisition and Legal aspect
	5CE229ML	MDM-Lab-1	0	1	Building Construction and Planning lab
VI	6CE239MD	MDM-5	2	0	Advance building material
VII	7CE307MD	MDM-6	2	0	Estimating and Costing
	7CE308ML	MDM-Lab-2	0	1	Estimatingand Costing lab
Total			**12**	**02**	

List of Courses for Double Minor in Environmental Engineering

Sr. No.	Course Code	Course Type	Proposed in Semester	Credits		Course name
				T	P	
1			III	3	0	Rain water Harvesting
2			IV	3	0	Environmental Laws and Policy
3			V	3	0	Water Shed Management
4			VI	3	0	Rural Water Supply and Sanitation
5			VII	3	0	Industrial Waste Water Management
6			VIII	3	0	Water and Waste Water Treatment*
Total				**18**	**0**	

OR

List of Courses for Double Minor in Structural Engineering

Sr. No.	Course Code	Course Type	Proposed in Semester	Credits		Course name
				T	P	
1			III	3	0	Introduction to Engineering Seismology
2			IV	3	0	Plates &Shells
3			V	3	0	Dynamics of Structures
4			VI	3	0	Matrix Method of Structural Analysis
5			VII	3	0	Advanced Reinforced Concrete Design
6			VIII	3	0	Reliability Based Structural Design*
Total				**18**	**0**	

***-Online Mode**

Note: Eligible students may pursue a Double Minor degree by undertaking Multidisciplinary and Specialization Minor courses offered between the 3rd and 8th semesters, subject to the institute norms and policy. Students may complete these requirements through institute-offered courses or by enrolling in approved MOOCs via SWAYAM/NPTEL, ensuring fulfillment of the required 18 credits and academic standards for the Double Minor degree

List of Courses for B.E. Civil Engineering with Honours Degree

Sr. No.	Course Code	Course Type	Proposed in Semester	Credits		Course name
				T	P	
1			III	3	0	Air Pollution & Control
2			IV	3	0	Waste to Energy
3			V	3	0	Structural Dynamics
4			VI	3	0	Geographic Information System
5			VII	3	0	Advanced Foundation Engineering
6			VIII	3	0	Finite Element Method*
Total				**18**	**0**	

***-Online Mode**

Eligible students may complete these requirements by enrolling in approved MOOCs via SWAYAM/NPTEL, ensuring fulfillment of the required 18 credits and academic standards for the Honours degree

List of Courses for B.E. Civil Engineering Honours with Research Degree

Sr. No.	Course Code	Course Type	Proposed in Semester	Credits		Course name
				T	P	
1			VII	0	9	Research Project (Part 1) Problem Identification and definitions, Literature Review, Experimental Work
2			VIII	0	9	Research Project (Part 2) Prototype Development, Data Analysis, Publication
Total				**0**	**18**	

Nomenclature: Name of Department offering the courses

Acronym	Discipline of engineering/Department offering the course
SH	Science and Humanities
ME	Mechanical Engineering
EE	Electrical Engineering
CS	Computer Science and Engineering
CE	Civil Engineering
IT	Information Technology
ET	Electronics & Telecommunication Engg.
TX	Textile Engineering
EP	Electrical (Electronics & Power) Engg.
AD	Artificial Engineering and Data Science
CH	Chemical Engineering
DS	CSE (Data Science)

Courses

Acronym	Course/Subject Vertical
BS	Basic Science Course
BL	Basic Science Laboratory
ES	Engineering Science Course
EL	Engineering Science Laboratory
PC	Program Course
PL	Program Laboratory
PE	Program Elective Course
MD	Multidisciplinary Minor Course
ML	Multidisciplinary Minor Laboratory
OE	Open Elective

Acronym	Course/Subject Vertical
VS	Vocational Skill Enhancement Course
AE	Ability Enhancement Course
EM	Entrepreneurship/Economics/Management Course
IK	Indian Knowledge System
VE	Value Education Course
RM	Research Methodology
FP	Field Project
II	Industry Internship
PR	Project
CC	Co-curricular Course
AL	All (Common for all Branches)