



ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR

(An autonomous institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

B. Tech. Scheme of Examination & Syllabus 2024-25

Group II (Civil Engineering)

Annexure – I

CREDIT FRAMEWORK STRUCTURE

Semester		I	II	III	IV	V	VI	VII	VIII	Total Credits
Basic Science courses	BSC	7	7	-	-	-	-	-	-	14
Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	ESC	6	6	-	-	-	-	-	-	12
Professional core courses	PCC	5	3	15	10	14	6	7	-	60
Professional Elective courses relevant to chosen specialization/branch	PEC	-	-	-	-	-	6	5	3	14
Compulsory Multidisciplinary Minor	MDM	-	-	2	3	3	3	3	-	14
Open subjects – Electives from other technical and /or emerging subjects	OE	-	-	-	-	-	2	3	3	8
Ability Enhancement Course (AEC), Indian Knowledge System (IKS), Value Education Course (VEC), Entrepreneurship/Economics/Management courses	HSSM	1	3	3	3	-	-	-	-	10
Vocations Skill Courses (VSC) , Skill Enhancement Courses(SEC)	VSEC	1	1	-	3	3	1	-	-	9
Project work, seminar and internship in industry or elsewhere, Industry Training and Skill Development, Capstone Course	ELC	-	-	2	1	-	2	2	14	21
Co-curricular Courses (CC) such as Health and Wellness, Yoga education sports, and fitness, Cultural Activities, NSS/NCC and Fine/ Applied/ Visual/ Performing Arts	CC	2	2	-	-	-	-	-	-	4
Total Credits (Major)		22	22	22	20	20	20	20	20	166

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Group II (Civil Engineering)

SEMESTER I

Sr. No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				No of Hours for ESE
				L	T			Mid-Sem Examination	Continual Assessment	End Sem Examination	Total	
1	BSC	24CV101T	Applied Physics	2	-	-	2	10	10	30	50	1.5
2	BSC	24CV101P	Applied Physics Lab	-	-	2	1	-	25	25	50	-
3	BSC	24CV102T	Linear Algebra and Calculus	3	1	-	4	20	20	60	100	3
4	PCC	24CV103T	Engineering Mechanics	3	1	-	4	20	20	60	100	3
5	PCC	24CV103P	Engineering Mechanics Lab	-	-	2	1	-	25	25	50	-
6	ESC	24CV104T	Logic building with C	3	-	-	3	20	20	60	100	3
7	ESC	24CV104P	Logic building with C Lab	-	-	2	1	-	25	25	50	-
8	AEC	24CV105P	Business Communication Skills I Lab	-	-	2	1	-	25	25	50	-
9	ESC	24CV106T	Design Thinking	2	-	-	2	10	10	30	50	1.5
10	SEC	24CV141P	Career Development I	-	-	2	1	-	50	-	50	-
11	CC	24CV107T	Co-curricular Courses - I	2	-	-	2	-	50	-	50	-
Total				15	2	10	22	80	280	340	700	-

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Group II (Civil Engineering)

SEMESTER II

Sr. No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				No of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination	Total	
1	BSC	24CV201T	Applied Chemistry	2	-	-	2	10	10	30	50	1.5
2	BSC	24CV201P	Applied Chemistry Lab	-	-	2	1	-	25	25	50	-
3	BSC	24CV202T	Statistics and Transforms	3	1	-	4	20	20	60	100	3
4	ESC	24CV203T	Engineering Graphics	2	-	-	2	10	10	30	50	1.5
5	ESC	24CV203P	Engineering Graphics Lab	-	-	2	1	-	25	25	50	-
6	ESC	24CV204T	Basics of Electrical & Electronics	2	-	-	2	10	10	30	50	1.5
7	ESC	24CV204P	Basics of Electrical & Electronics Lab	-	-	2	1	-	25	25	50	-
8	PCC	24CV205T	Construction Materials & Techniques	3	-	-	3	20	20	60	100	3
9	AEC	24CV206P	Business Communication Skills II Lab		-	2	1	-	25	25	50	-
10	IKS	24CV207T	Indian Knowledge Systems	2	-	-	2	10	10	30	50	-
11	SEC	24CV241P	Career Development II		-	2	1	-	50	-	50	-
12	CC	24CV208T	Co-curricular Courses - II	2			2	-	50	-	50	-
Total				16	1	10	22	80	280	340	700	-

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Group II (Civil Engineering)

SEMESTER III

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				No. of Hrs for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination	Total	
1.	PCC	24CV301T	Mathematics for Civil Engineers	2	-	-	2	10	10	30	50	1.5
2.	PCC	24CV302T	Solid Mechanics	3	-	-	3	20	20	60	100	3
3.	PCC	24CV302P	Solid Mechanics Lab	-	-	2	1	-	25	25	50	-
4.	PCC	24CV303T	Concrete Technology	3	-	-	3	20	20	60	100	3
5.	PCC	24CV303P	Concrete Technology Lab	-	-	2	1	-	25	25	50	-
6.	PCC	24CV304T	Environmental Engineering	3	-	-	3	20	20	60	100	3
7.	PCC	24CV304P	Environmental Engineering Lab	-	-	2	1	-	25	25	50	-
8.	PCC	24CV305P	Computer Aided Civil Engineering Drawing	-	-	2	1	-	25	25	50	-
9.	AEC	24ES401T	Economics.& Management	3	-	-	3	20	20	60	100	3
10.	MDM	24CV331M	MDM - I (Refer MDM Basket)	2	-	-	2	10	10	30	50	1.5
11.	SEC	24CV341P	Career Development - III	-	-	2	1	-	50	-	50	-
12.	ELC	24CV306P	Micro Project I*	-	-	2	1	-	50	--	50	-
Total				16	-	-	22	100	300	400	800	-

* Field Project or Community engagement project in the major discipline

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Group II (Civil Engineering)

SEMESTER IV

Sr. . No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				No of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination	Total	
1.	PCC	24CV401T	Structural Analysis	3	-	-	3	20	20	60	100	3
2.	PCC	24CV401P	Structural Analysis Lab	-	-	2	1	-	25	25	50	-
3.	PCC	24CV402T	Fluid Mechanics	3	-	-	3	20	20	60	100	3
4.	PCC	24CV402P	Fluid Mechanics Lab	-	-	2	1	-	25	25	50	-
5.	PCC	24CV403P	Surveying & Geomatics Lab	-	-	4	2	-	50	50	100	-
6.	MDM	24CV431M	MDM - II (Refer MDM Basket)	3	-	-	3	20	20	60	100	3
7.	VSC	24CV404T	Technical Skill Development - I	2	-	-	2	-	50	-	50	-
8.	VEC	24ES301T	Value Education Course	3	-	-	3	20	20	60	100	3
9.	SEC	24CV441P	Career Development - IV	-	-	2	1	-	50	-	50	-
10.	ELC	24CV405P	Micro Project II*	-	-	2	1	-	50	-	50	-
Total				14	0	12	20	80	330	340	750	-

* Field Project or Community engagement project in the major discipline

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SEMESTER V

Sr. No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				No of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination	Total	
1.	PCC	24CV501T	Geotechnical Engineering	3	-	-	3	20	20	60	100	3
2.	PCC	24CV501P	Geotechnical Engineering Lab	-	-	2	1	-	25	25	50	-
3.	PCC	24CV502T	Transportation Engineering	3	-	-	3	20	20	60	100	3
4.	PCC	24CV502P	Transportation Engineering Lab	-	-	2	1	-	25	25	50	-
5.	PCC	24CV503T	Reinforced Cement Concrete Structures	3	-	-	3	20	20	60	100	3
6.	PCC	24CV503P	Reinforced Cement Concrete Structures Lab	-	-	2	1	-	25	25	50	-
7.	PCC	24CV504T	Hydrology & Water Resources	2	-	-	2	10	10	30	50	1.5
8.	MDM	24CV531M	MDM - III (Refer MDM Basket)	3	-	-	3	20	20	60	100	3
9.	VSC	24CV505T	Technical Skill Development - II	2	-	-	2	-	50	-	50	-
10.	SEC	24CV541P	Career Development - V	-	-	2	1	-	50	-	50	-
Total				16	0	8	20	90	265	345	700	-

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SEMESTER VI

Sr. No	Course Category	Course Code	Course Title	Hours per Week			Credits	Mid-Sem Examination	Maximum Marks			No of Hours for ESE
				L	T	P			Continual Assessment	End Sem Examination	Total	
1	PCC	24CV601T	Steel Structures	3	-	-	3	20	20	60	100	3
2	PCC	24CV601P	Steel Structures Lab	-	-	2	1	-	25	25	50	-
3	PCC	24CV602P	Building Design & Drawing Lab	-	-	4	2	-	50	50	100	3
4	PEC	24CV603T	Professional Elective - I	3	-	-	3	20	20	60	100	3
5	PEC	24CV604T	Professional Elective - II	3	-	-	3	20	20	60	100	3
6	MDM	24CV631M	MDM - IV (Refer MDM Basket)	3	-	-	3	20	20	60	100	3
7	OE	24CV661O	Open Elective - I	2	-	-	2	10	10	30	50	1.5
8	ELC	24CV605P	Project - I	-	-	4	2	-	50	50	100	-
9	SEC	24CV641P	Career Development - IV	-	-	2	1	-	50	-	50	-
Total				14	0	12	20	90	265	395	750	-

Open Elective - I

24CV661O	OE - I Public Health Engineering
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Professional Elective - I

24CV603T(i)	PE - I Advanced Structural Analysis
24CV603T(ii)	PE - I Advanced Surveying
24CV603T(iii)	PE - I Advanced Fluid Mechanics

Professional Elective - II

24CV604T(i)	PE - II Advanced Reinforced Cement Concrete Structures
24CV604T(ii)	PE - II Air Pollution & Control
24CV604T(iii)	PE - II Foundation Engineering
24CV604T(iv)	PE - II Advanced Traffic Engineering

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Group II (Civil Engineering)

SEMESTER VII

Sr. No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				No of Hours for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination	Total	
1.	PCC	24CV701T	Estimation & Costing	3	-	-	3	20	20	60	100	3
2.	PCC	24CV701P	Estimation & Costing Lab	-	-	2	1	-	25	25	50	-
3.	PCC	24CV702T	Construction Management & Law	3	-	-	3	20	20	60	100	3
4.	PEC	24CV703T	Professional Elective - III	3	-	-	3	20	20	60	100	3
5.	PEC	24CV704T	Professional Elective - IV	2	-	-	2	10	10	30	50	1.5
6.	OE	24CV761O	Open Elective- II	3	-	-	3	20	20	60	100	3
7.	MDM	24CV731M	MDM - V (Refer MDM Basket)	3	-	-	3	20	20	60	100	3
8.	ELC	24CV705T	Project - II	-	-	4	2	-	50	50	100	-
Total				17	0	6	20	110	185	405	700	-

Open Elective - II	
24CV761O	OE - II Green Buildings

Professional Elective - III	
24CV703T(i)	PE - III Advanced Steel Design
24CV703T(ii)	PE - III Mass Rapid Transit System
24CV703T(iii)	PE - III Ground Improvement Techniques
24CV703T(iv)	PE - III Disaster Management

Professional Elective - IV	
24CV704T(i)	PE - IV Earthquake Resistant Design of Concrete Structures
24CV704T(ii)	PE - IV Solid Waste Management
24CV704T(iii)	PE - IV Irrigation Engineering

SEMESTER VIII

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Option A

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks			No of Hours for ESE
				L	T	P		Continual Assessment	End Sem Examination	Total	
1	ELC	24ES801T	Research Methodology [#]	2	-	-	2	20	30	50	1.5
2	PEC	24CV802T	Professional Elective - V [#]	3	-	-	3	40	60	100	3
3	OE	24CV861O	Open Elective- III [#]	3	-	-	3	40	60	100	3
4	ELC	24CV803P*	Project based on one semester internship in Industry/Research Institute/ National Laboratories/ Incubation Center	-	-	-	12	300	100	400	-
Total				8	0	0	20	400	250	650	-

Option B

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks			No of Hours for ESE
				L	T	P		Continual Assessment	End Sem Examination	Total	
1	ELC	24ES801T	Research Methodology [#]	2			2	20	30	50	1.5
2	PEC	24CV802T	Professional Elective - V [#]	3			3	40	60	100	3
3	OE	24CV861O	Open Elective- III [#]	3	-	-	3	40	60	60	3
4	ELC	24CV803P(i)	Institutional Internship ^{\$} & Project III	-	-	-	12	300	100	400	-
Total				8	0	0	20	400	250	650	

Option B is available to students only after recommendation of the concerned Head of the department. The project and internship should contribute towards career development plan of the students.

[#] Courses to be mapped with NPTEL/SWAYAM/MOOC offered course in that semester

* Minimum 90 days internship in any industry and project is to be carried out during internship.

^{\$} Two NPTEL courses (as per choice of student) or Institutional Internship by IEDC, SVP CET.

Open Elective - III	
24CV861O	OE - III Air Pollution and Control

Professional Elective - V	
24CV802T(i)	PE - V Industrial Wastewater Treatment
24CV802T(ii)	PE - V Retrofitting and Rehabilitation of Civil Infrastructure
24CV802T(iii)	PE - V Modern Construction Materials

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Group II (Civil Engineering)

Basket for Multi-Disciplinary Minor Courses (MDM)

A. Civil Engineering

Semester	Course Category	Course Code	Name of Course
III	MDM-I	24CV331M	MDM - I Basics of Civil Engineering
IV	MDM-II	24CV431M	MDM - II Basic Construction Materials
V	MDM-III	24CV531M	MDM - III Building Planning & Construction
VI	MDM-IV	24CV631M	MDM - IV Building Services
VII	MDM-V	24CV731M	MDM - V Smart Transit System

Basket for Program Elective Courses (PEC)

B. Civil Engineering

Semester	Course Category	Course Code	Name of Course
VI	PEC	24CV603T(i) 24CV603T(ii) 24CV603T(iii)	PE - I Advanced Structural Analysis PE - I Advanced Surveying PE - I Advanced Fluid Mechanics
VI	PEC	24CV604T(i) 24CV604T(ii) 24CV604T(iii) 24CV604T(iv)	PE - II Advanced Reinforced Cement Concrete Structures PE - II Air Pollution & Control PE - II Foundation Engineering PE - II Advanced Traffic Engineering
VII	PEC	24CV703T(i) 24CV703T(ii) 24CV703T(iii) 24CV703T(iv)	PE - III Advanced Steel Design PE - III Mass Rapid Transit System PE - III Ground Improvement Techniques PE - III Disaster Management
VII	PEC	24CV704T(i) 24CV704T(ii) 24CV704T(iii)	PE - IV Earthquake Resistant Design of Concrete Structures PE - IV Solid Waste Management PE - IV Irrigation Engineering

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VIII	PEC	24CV802T(i) 24CV802T(ii) 24CV802T(iii)	PE - V Industrial Wastewater Treatment PE - V Retrofitting and Rehabilitation of Civil Infrastructure PE - V Modern Construction Materials
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Basket for Open Elective Courses (OE)

C. Civil Engineering

Semester	Course Category	Course Code	Name of Course
VI	VI	24CV661O	OE - I Public Health Engineering
VII	VII	24CV761O	OE - II Green Buildings
VIII	VIII	24CV861O	OE - III Air Pollution and Control

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Group II (Civil Engineering)

Award of UG Certificate in Major with 40 credits and an additional 8 credits (After First Year)



EXIT COURSES			
S.N.	Course name	Mode of conduction	Credits
1.			
2.			
3.			

Award of UG Diploma in Major with _____ credits and an additional 8 credits (After Second Year)

EXIT COURSES			
S.N.	Course name	Mode of conduction	Credits
1.			
2.			
3.			

Award of UG Degree in Major with _____ credits and an additional 8 credits (After Third Year)

EXIT COURSES			
S.N.	Course name	Mode of conduction	Credits
1.			
2.			
3.			

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