

D. Y. Patil College of Engineering and Technology

**Kasaba Bawada, Kolhapur
(An Autonomous Institute)**

**NBA Accredited
Accredited by NAAC with 'A' Grade**



D Y PATIL
COLLEGE *of*
ENGINEERING & TECHNOLOGY
(AN AUTONOMOUS INSTITUTE)
KASABA BAWADA, KOLHAPUR

**Structure and Syllabus
(As per NEP 2020)**

for

**Second Year B. Tech in
Civil Engineering**

**Department of Civil Engineering
W. e. f. 2024-25**

D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY, KOLHAPUR

Teaching and Evaluation Scheme from Year 2024-25 (as per NEP-2020)

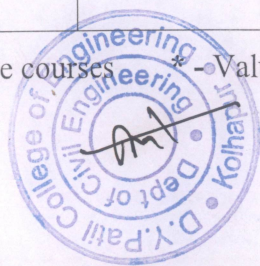
Second Year B. Tech. Civil Engineering

SEMESTER-III

Sr. No	Course Code	Course Type	Course Name	Teaching Scheme				Theory			Practical/ Tutorial		Total Marks
				Credits	Contact Hrs			ISE	MSE	ESE	INT	OE/ PoE	
					L	P	T						
1	231CEPCCL201	PCC	Building Construction	3	3	-	-	20	30	50	-	-	100
2	231CEPCCL202	PCC	Mechanics of Structure	3	3	-	-	20	30	50	-	-	100
3	231CEPCCL203	PCC	Surveying and Geomatics	2	2	-	-	-	-	50	-	-	50
4	231CEPCCP201	PCC	Building Construction Lab	1	-	2	-	-	-	-	25	-	25
5	231CEPCCP202	PCC	Mechanics of Structure Lab	1	-	2	-	-	-	-	25	25	50
6	231CEFP201	FP	Surveying Project	2	1	2	-	-	-	-	25	25	50
7	231CEMDML201	MDM-1	Commercial Aspects in Civil Engineering	2	2	-	-	20	-	30	-	-	50
8	231CEVECL201	VEC	Environmental Ethics and Sustainability	2	2	-	-	20	30	-	-	-	50
9	231CEOECL201-203	OEC-1	Open Elective-I (Online)	4	2 ^{\$}	-	-	20	30	50	25	-	125
10	231CEHSSML201	HSSM	Project Management	2	2	-	-	20	30	-	-	-	50
11	231CEMCL201	MC	Finishing School Training III	-	3 [*]	-	-	-	-	-	50 [*]	-	Grade
12	231CEGCAP201	CCA	Liberal Learning	-	-	2	-	-	-	-	50 [*]	-	Grade
			Total	22	17	8	-	120	150	230	100	50	650

\$ - Contact hours for online courses * - Values not included in total

Min. Marks for Passing: 40% of total marks of individual course



D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY, KOLHAPUR

Teaching and Evaluation Scheme from Year 2024-25 (as per NEP-2020)

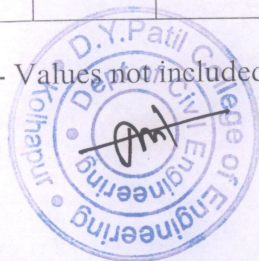
Second Year B. Tech. Civil Engineering

SEMESTER-IV

Sr. No	Course Code	Course Type	Course Name	Teaching Scheme				Theory			Practical/ Tutorial		Total Marks
				Credits	Contact Hrs			ISE	MSE	ESE	INT	OE/ PoE	
					L	P	T						
1	231CEPCCL204	PCC	Environmental Engineering	3	3	-	-	20	30	50	-	-	100
2	231CEPCCL205	PCC	Soil Mechanics	3	3	-	-	20	30	50	-	-	100
3	231CEPCCL206	PCC	Concrete Technology	2	2	-	-	-	-	50	-	-	50
4	231CEPCCP204	PCC	Environmental Engineering Lab	1	-	2	-	-	-	-	25	25	50
5	231CEPCCP205	PCC	Soil Mechanics Lab	1	-	2	-	-	-	-	25	25	50
6	231CEMDML202	MDM-2	Infrastructure Engineering	2	2	-	-	20	-	30	-	-	50
7	231CEVECL202	VEC	Environmental Studies	2	2	-	-	-	-	50	-	-	50
8	231CEOECL204-206	OEC-2	Open Elective-II	2	2	-	-	-	-	50	-	-	50
9	231CEHSSML202	HSSM	Principles of Economics	2	2	-	-	20	30	-	-	-	50
10	231CEAECP201	AEC	Mini Project	2	-	4	-	-	-	-	50	-	50
11	231CEVSECP201	VSEC	Material Testing	2	1	2	-	-	-	-	25	25	50
12	231CEMCL202	MC	Finishing School Training IV	-	3*	-	-	-	-	-	50*	-	Grade
13	231CECCAP202	CCA	Liberal Learning	-	-	2	-	-	-	-	50*	-	Grade
			Total	22	17	12	-	80	90	280	125	75	650

* - Values not included in total

Min. Marks for Passing: 40% of total marks of individual course





D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-III (Academic Year 2024-25)

Course Plan

Course Title: Building Construction	
Course Code: 231CEPCCL201	Semester: III
Teaching Scheme: L-P-T: 3-0-0	Credits: 3
ISE + MSE Marks: 20 + 30	ESE Marks: 50

Course Description:

This course essentially imparts the knowledge of construction technology for construction of buildings and related components; at an introductory level. This course further introduces the student to interpret the drawings and get familiar with the functions and requirements of building components. The students will get an exposure to the general construction practices by undertaking site visits.

Program Specific Outcomes (PSOs):

PSO1	To design and execute cost effective Civil Engineering solutions for sustainable development.
PSO2	To develop entrepreneur skills among the graduates to fulfill the needs of society.

Course Objectives:

1	To develop the building walls and foundations and how they are useful for buildings.
2	To obtain knowledge about design of various building components of building like about arches, floors & roofs, doors, windows and ventilators, stairs lifts.

Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to
PCCL201.1	Explain suitable type of foundation based on different parameters.
PCCL201.2	Demonstrate the main principles, constructional features of masonry and different building elements.
PCCL201.3	Explain the different building elements based on suitability.
PCCL201.4	Implement the knowledge of building finishes and form work requirements



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY****KOLHAPUR-416006** (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering**SEM-III** (Academic Year 2024-25)

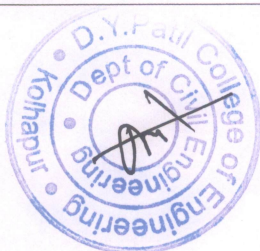
Unit 4. Stairs, Lifts and Escalators Technical terms in stairs, Requirements of good stair, Various materials used for stairs, Types of Stairs, Geometrical design of Dog legged stair, open well and quarter turn stairs. Concept of folded stair Lifts, Ramps and Escalators –functions and requirements	8
Unit 5. Floors and Roofs Floors: Types of flooring, Requirement of good floor, Selection of flooring material Procedure for laying of concrete, Mosaic, Kota, Slate, Marble, Granite, Vitrified Tile flooring, Cladding Types-Tiles-ACP Roof: Requirement of good roof, Types of roof, Elements of a pitched roof, Trussed roof, King post Truss, Queen Post Truss, Steel Truss, Different roofing materials, R.C.C., Special Roofs.	8
Unit 6. Wall Finishes Plastering and Pointing: Mortar and its types, Purpose, materials, Types and methods of plastering and pointing: Sand faced plastering, Stucco plastering, lathe plastering, defects in plastering. Water proofing with various thicknesses. Damp proofing - causes, effects and methods. Paints - Purpose, types, technical terms, ingredients and defects, Preparation and applications of paints to new and old plastered surfaces, wooden and steel surfaces, Texture finishes.	8

Text Books:

1	Arora, S. P. and Bindra, <i>Building Construction</i> , Dhanpat Rai Publication, Delhi, Edition 2013. ISBN: 9788189928803
2	Kumar, Sushil, <i>Building Materials and Construction</i> , 20th edition, reprint 2015, Standard Publishers
3	Punmia, Dr. B. C., Jain, Ashok Kumar, Jain, Arun Kumar, <i>Building Construction</i> , Laxmi Publications (P) Ltd., New Delhi. ISBN 9788170080534
4	Rangawala, S. C., <i>Engineering Materials</i> , Charter Publishing House, Anand, Dist-Anand, India. ISBN-13: 978-8185594859

Reference Books:

1	Duggal, S. K., <i>Building Materials</i> , Fourth Edition, New Age International (P) Limited, 2016
2	Vergese, P. C., <i>Building Materials</i> , PHI Learning Pvt. Ltd.
3	Jagadish. K.S, <i>Alternative Building Materials Technology</i> , New Age International, 2007
4	Francis, D.K., <i>Building Construction Illustrated</i> , Wiley India, USA, 2014, ISBN: 978-1-118-45834



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY**

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-III (Academic Year 2024-25)

Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to
PCCL202.1	Apply the concepts of stresses and strains and elastic behaviour of materials.
PCCL202.2	Analyze the behavior of the beams and trusses subjected to various types of loadings under bending and shear
PCCL202.3	Solve slope and deflections for determinate structures by different methods
PCCL202.4	Analyze columns and struts under different loading conditions

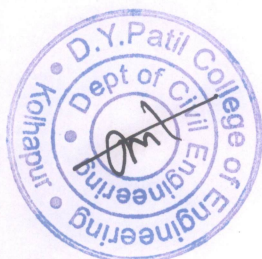
Prerequisite:	Engineering Mechanics
----------------------	-----------------------

Course Articulation Matrix:

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and
Program Specific Outcomes (PSOs)

POs/ COs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2	BTL
PCCL202.1	3	2	-	-	-	-	-	-	-	-	-	-	1	-	3
PCCL202.2	3	3	-	2	-	-	-	-	-	-	-	-	1	-	3
PCCL202.3	3	3	-	2	-	-	-	-	-	-	-	-	1	-	3
PCCL202.4	3	3	-	2	-	-	-	-	-	-	-	-	1	-	3

Content	Hours
Unit 1. Stresses & Strains Elasticity and Plasticity – Concept of axial stresses, strains – Hooke's law, Stress-strain diagram of ductile and brittle materials, Elastic limit, Ultimate stress, Yielding, Modulus of elasticity, Factor of safety, Poisson's ratio and volumetric strain, Principle of superposition, Composite sections, Elastic constants and their relations – Stresses and strains due to change in temperature.	6





D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-III (Academic Year 2024-25)

Text Books:

1	Punmia, B. C., and Jain, A. K., <i>Mechanics of Materials</i> , Laxmi Publications (P) Ltd, New Delhi, 2001.
2	Bhavikatti, S. S., <i>Structural Analysis</i> , Vikas Publications House, New Delhi.

Reference Books:

1	Junnarkar, S. B. and Shah, Dr. H. J., <i>Mechanics of Structures Vol. I & II</i> - Charotar Publishing House Pvt. Ltd. - Twenty-second edition.
2	Bansal, R. K., <i>Strength of Materials</i> - Laxmi Publications.
3	Timoshenko, S. and Young, J. W., <i>Elements of Strength of Materials</i> - Affiliated East West Press, New Delhi.
4	Singer, F.L. and Pytel, Andrew, <i>Strength of Materials</i> - Harper and Row Publication.
5	Hibbeler, R. C., <i>Mechanics of Materials</i> - Pearson Prentice Hall.
6	Beer, Ferdinand P. and Johnston, E. Russell, <i>Mechanics of Materials</i> - McGraw Hill Publication.
7	Gere, J. M., <i>Mechanics of Materials</i> - Thomson Books, New Delhi, 2003.
8	Rajput, R.K., <i>Strength of Materials</i> - S. Chand & Company Ltd.



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY**

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-III (Academic Year 2024-25)

Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to
PCCL203.1	Explain the basics of plane surveying and distinguish instruments used for it.
PCCL203.2	Apply surveying equipment to gather data and interpret the results obtained.
PCCL203.3	Discuss the importance of terrestrial photogrammetry, flight planning, and stereoscopy in the creation of 3D geographical maps.
PCCL203.4	Explain utilization of modern instruments like Total Station and DGPS in Civil Engineering projects.

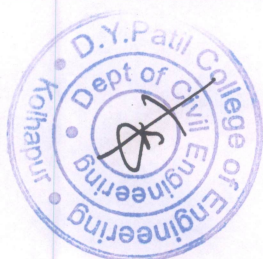
Prerequisite:	Fundamentals of Civil Engineering, Geometry, Trigonometry
----------------------	-----------------------------------------------------------

Course Articulation Matrix:

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and
Program Specific Outcomes (PSOs)

POs/ COs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2	BTL
PCCL203.1	2	1	-	-	1	1	-	-	-	-	-	1	-	-	3
PCCL203.2	2	1	-	-	1	1	-	-	-	-	-	1	-	-	3
PCCL203.3	2	1	-	-	1	1	-	-	-	-	-	1	1	-	3
PCCL203.4	2	-	-	-	1	1	-	-	-	-	-	1	1	2	3

Content	Hours
Unit 1. Principles of Surveying Introduction, Principles and classification of surveying; Concept of scales; Survey stations and lines – ranging and bearing. Levelling: Plane table surveying, Principles of levelling; differential, reciprocal levelling, profile levelling and cross sectioning. Digital and Auto Level, Errors in levelling; contouring: Characteristics, methods, uses.	8





D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-III (Academic Year 2024-25)

Course Plan

Course Title: Building Construction Lab	
Course Code: 231CEPCCP201	Semester: III
Teaching Scheme: L-P-T: 0-2-0	Credits: 1
ISE Marks: 25	ESE Marks: N. A.

Course Description:

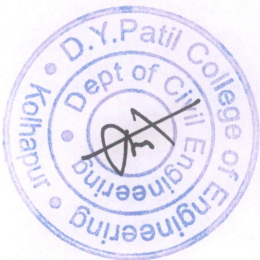
This course offers an introduction to the theory and construction of basic building systems and its requirements. It gives introduction of various building components with its functions and requirements. This course aims at preparation the sketches and detailed drawings of various building components.

Program Specific Outcomes (PSOs):

PSO1	To design and execute cost effective Civil Engineering solutions for sustainable development.
PSO2	To develop entrepreneur skills among the graduates to fulfil the needs of society.

Course Objectives:

1	Prepare the sketches and drawing for various building components and understand the drawing principles involved in the design.
2	To acquire knowledge about different types of foundations and masonry, floors, roofs.
3	To obtain knowledge about various components of building like doors, windows, stairs lifts.





D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-III (Academic Year 2024-25)

5	Stone Masonry: Type of stone masonry	2
6	Arches: brick arches, rough, axed, stone arches, flat – semi circular	2
7	Doors: Types of doors, Details of double shutter Paneled Door	2
8	Windows: Types of windows, Details of Casement window	2
9	Fixtures and fastenings used for doors and windows	2
10	Stairs: Types of stairs	2
11	Stairs: Design and drawing of Dog legged stair	2
12	Stairs: Design and drawing of open well stair	2
13	Stairs: Design and drawing of quarter turn stair	2
14	Roofs: Types of trusses, Details of king or queen post truss	2
15	Site visit to construction site work and prepare report	2

Text Books:

1	Arora, S.P., Bindra, S.P., <i>A Text Book of Building Construction</i> – Dhanpat Rai Publications
2	Shah, Kale, Patki, <i>Building Drawing</i> – Tata McGraw-Hill
3	Sane, Y. S., <i>Building Design and Drawing</i> – Allied Book Stall, Pune
4	Rangawala, S.C., <i>Building Construction</i> , Charter Publishing House, Anand, India, 35th Edition 2008

Reference Books:

1	Punmia, B.C., <i>Building Construction</i> , Laxmi Publications Ltd, New Delhi, Dec 2006
2	Sikka, V.B., <i>A Course in Civil Engineering Drawing</i> – S.K. Kataria and Sons
3	Swamy, Dr. N. Kumara, Rao, A. Kameswara, <i>Building Planning and Drawing</i> , 8th Edition, Charotar Publications, 2010

Codes:

1	I.S. 962 – 1989 Code for Practice for Architectural and Building
2	SP 7- National Building Code Group 1 to 10- B.I.S. New Delhi



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY**

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-III (Academic Year 2024-25)

Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to
PCCP202.1	Execute experiments to explore various properties of solid materials
PCCP202.2	Identify and analyze engineering values such as stress, strain, deflection etc.
PCCP202.3	Demonstration the Strain gauges and Strain indicators

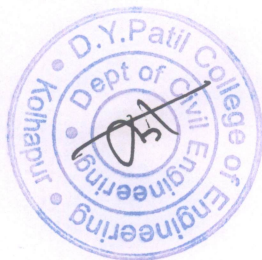
Course Articulation Matrix:

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and
Program Specific Outcomes (PSOs)

POs/ COs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2	BTL
PCCP202.1	2	3	-	2	2	-	-	-	-	-	-	2	2	1	2
PCCP202.2	2	3	-	2	-	-	-	1	-	-	-	2	2	1	3
PCCP202.3	2	-	-	-	1	-	-	-	-	2	-	1	-	-	3

LIST OF EXPERIMENTS/ACTIVITY

Experiment No	Name of Experiment	Hours
1	To determine the ultimate tensile strength of Mild steel bars. Stress stain graph, Young's modulus	2
2	To determine the ultimate tensile strength of HYSD bars. Stress stain graph, Young's modulus	2
3	To determine the ultimate buckling strength of materials like mild steel, cast iron and compare their strength.	2
4	To determine the ultimate buckling strength of materials like copper, aluminium, and compare their strength.	2
5	Determination of compression test on Timber – along and parallel to	2



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY****KOLHAPUR-416006 (An Autonomous Institute)****B. Tech. Curriculum as per NEP-2020****Second Year B. Tech. Civil Engineering****SEM-III (Academic Year 2024-25)****Course Plan**

Course Title: Surveying Project	
Course Code: 231CEFPP201	Semester: III
Teaching Scheme: L-P-T: 1-2-0	Credits: 2
ISE Marks: 25	ESE Marks: 25 (OE)

Course Description:

The course includes introduction to various techniques of surveying which is an important field of Civil Engineering. The course aims to give thorough knowledge to students about the use of various traditional and modern instruments in surveying. Also this course includes both traditional and modern methods of surveying.

Program Specific Outcomes (PSOs):

PSO1	To design and execute cost effective Civil Engineering solutions for sustainable development.
PSO2	To develop entrepreneur skills among the graduates to fulfill the needs of society.

Course Objectives:

1	Describe the functions of surveying in Civil Engineering field.
2	Explain the traditional methods of surveying such as chain compass survey, simple and differential levelling, theodolite traversing, tachometry, and contouring
3	Apply knowledge of the modern techniques of surveying such as use of Total Station
4	Explain different methods of plane survey, geodetic survey, hydrographic survey.
5	Calculate, design and establish curves, understand, interpret and prepare plan, profile and cross-sectional drawing

Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to
FPP201.1	Demonstrate basics of plane surveying conventional methods.
FPP201.2	Operate modern surveying equipment and interpret the data
FPP201.3	Use modern instruments like Total Station and DGPS in engineering projects.





D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-III (Academic Year 2024-25)

List of Experiments / Activity

Experiment No	Content	Hours
1	Measurement of horizontal angle by Direct method using vernier transit theodolite.	2
2	Measurement of horizontal angle by Repetition method	2
3	Determination of area using Total Station	2
4	Determination of height of building using Total Station	2
5	Traversing project using Total Station	4
6	Stake-out using Total Station	2
7	Use of GPS for property measurement	2
8	Determination of area using DGPS	2
9	Traversing using total DGPS	2
10	Block Contouring project using DGPS	4
11	Introduction to Q GIS	2
12	Creating Contour maps using DEM	2
13	Creating study area map	2

Text Books:

1	Basak, N. N., <i>Surveying and Leveling</i> - Tata McGraw Hill.
2	Punmia, B. C., Jain, Ashok K., Jain, Arun K., <i>Surveying, Vol. I and II</i> - Laxmi Publications

Reference Books:

1	Kanetkar, T. P., Kulkarni, S. V., <i>Surveying and Leveling</i> Vol. I and Vol. II - Pune Vidyarthi Griha Prakashan.
2	Duggal, S. K., <i>Surveying, Vol. I and II</i> - Tata McGraw Hill.
3	Arora, K. R., <i>Surveying Vol. I and II</i> - Standard Book House.
4	Subramanian, <i>Surveying and Levelling</i> - Oxford University Press.
5	Anderson, James M., Mikhail, Edward M., <i>Surveying: Theory and Practice</i> - Tata McGraw Hill.
6	Venkatramaiah, C., <i>Textbook of Surveying</i> - University Press.
7	Uren, John, Price, Bill, <i>Surveying for Engineers</i> - Palgrave Macmillan.



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY****KOLHAPUR-416006 (An Autonomous Institute)**

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering**SEM-III (Academic Year 2024-25)****Course Articulation Matrix:**

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)

POs/ COs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2	BTL
MDML201.1	3	-	-	-	-	2	-	-	-	-	2	-	-	2	2
MDML201.2	3	-	-	-	-	2	1	-	-	-	2	-	-	3	2
MDML201.3	3	-	-	-	-	2	-	-	-	-	2	-	-	2	2

Content	Hours
Unit 1. Types of Properties – Different zones, types of ownership (Lease and Freehold), Documents required – 7/12 extract, property card, zone maps, procedure for N.A., Land sub-division and Amalgamation, Re-development Projects.	7
Unit 2. Procedure of Project Development: Development agreement, Power of Attorney, Building Permissions, Agreement to Sale, Completion Certificate, Sale deed. Co-operative Housing Society Act, Apartment Act.	7
Unit 3. Special Permissions for Development: Environment Clearance, Environment Impact Analysis (EIA), Fire NOC. RERA – Applicability, Provisions, Regulations, Regulatory Authorities, Functioning, Penalty.	9
Unit 4. Project Finance- Stamp duty and Registration, Types of loans – cash-credit, project loan. Joint Ventures, Types of taxes- income tax, TDS, GST. Types of Royalty. Insurance – Labour welfare, labour insurance, material insurance.	7

Reference Books:

1	Mantri, Sandip, <i>The A to Z of Practical Building Construction and Its Management</i> , Satya Publications, New Delhi.
2	Prabhu, Ramesh S., Sampat, Kaushik, <i>Maharashtra RERA Law & Practice and Taxation of Real Estate Developers & Joint Development Arrangements with Accounting Aspects</i> , Taxmann Publication.



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY****KOLHAPUR-416006 (An Autonomous Institute)****B. Tech. Curriculum as per NEP-2020****Second Year B. Tech. Civil Engineering****SEM-III (Academic Year 2024-25)****Course Outcomes (COs):**

COs	At the end of successful completion of course, the students will be able to
VECL201.1	Explain key concepts and theories in environmental ethics and Sustainability
VECL201.2	Describe concept of EIS with respect to Sustainability
VECL201.3	Explain the concept of green building and importance of Sustainable construction practices
VECL201.4	Solve problems through actual field experience and report it in the form of field project work.

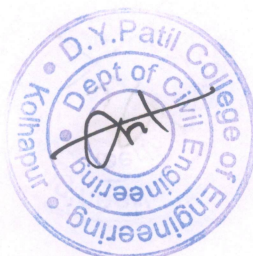
Prerequisite:	Understanding of Environmental Education course
----------------------	-------------------------------------------------

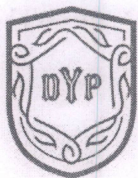
Course Articulation Matrix:

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)

POs/ COs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2	BTL
VECL201.1	3	-	-	-	-	-	3	3	-	-	-	2	-	-	2
VECL201.2	3	-	-	-	-	1	3	3	-	-	-	2	1	-	2
VECL201.3	3	-	-	-	-	1	3	3	-	-	-	2	1	-	2
VECL201.4	-	-	-	-	-	2	3	3	-	-	-	2	1	-	4

Content	Hours
Unit 1. Introduction to Environmental Ethics and Sustainability Introduction to Environmental Ethics: An overview of Environmental ethics, History of Environmental ethics, Key principles and theories Principles of Sustainability: Concept of sustainability, Sustainable development- definition, challenges, History, Goals of Sustainable Development- SDG's 17, Corporate- social responsibility and sustainability	08





D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-III (Academic Year 2024-25)

Course Plan

Course Title: Air Pollution and Control	
Platform: NPTEL Swayam by Prof. Bhola Ram Gurjar, IIT Roorkee	
Course Code: 31CEOCL201	Semester: III
Teaching Scheme: L-T-P: 2^S-0-0	Credits: 4
ISE + MSE Marks: 20 + 30	ESE Marks: 50

Course Description:

The objective of the course is to impart the knowledge and understanding of causes and effects of air pollution and their controlling mechanisms. The course will provide a deeper understanding of air pollutants, pollution inventory and modelling. The course also imparts knowledge on the impacts of air pollution on different aspects such as policy, human health and various contemporary technological innovation for betterment of air quality.

Program Specific Outcomes (PSOs):

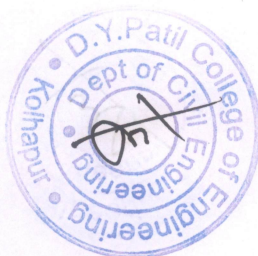
PSO1	To design and execute cost effective Civil Engineering solutions for sustainable development.
PSO2	To develop entrepreneur skills among the graduates to fulfill the needs of society.

Course Objectives:

1	To provide general understanding of quality of air and impact on local and global effects of air pollution on human, materials, properties and vegetation.
2	To discuss the various types of air pollution control equipment and their design principles and limitation.
3	To study air pollutants and its measurement techniques.

Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to
OECL201.1	Describe sources of air pollution and its impact on local and global community
OECL201.2	Discuss the various types of air pollution control equipment and their design principles and limitation.
OECL201.3	Explain air pollutants and its measurement techniques.



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY****KOLHAPUR-416006 (An Autonomous Institute)****B. Tech. Curriculum as per NEP-2020****Second Year B. Tech. Civil Engineering****SEM-III (Academic Year 2024-25)**

Unit 4. Indoor Air Pollution and Environmental Issues Indoor air pollution: sources, types and health impacts. Sampling, assessment and evaluation of Indoor air quality. Global and regional environmental issues of air pollution: Ozone depletion, Climate change, Global warming, Acid rain.	8
Unit 5. Air Pollution Standards Air pollution control devices, equipment and their design. Air pollution emission standards, National and international policies, acts, rules and regulations.	8
Unit 6. Air Pollution Control and Challenges Emerging technologies and strategies to mitigate air pollution, Current challenges and way forward. Lab-based measurements of air pollutants.	7

Text Books:

1	Bhatiya, S. C., <i>Air Pollution And its Control</i> , Atlantic Publications.
2	Kant, Ajni, Kant, Keshav, <i>Air Pollution and Control Engineering</i> , Khanna Book Publishing Co. Pvt. Ltd., Delhi.

Reference Books:

1	Wark, K., Warner, C.F., Davis, W.T., <i>Air Pollution: Its Origin and Control</i> , Addison-Wesley Longman, 1998.
2	Boubel, R.W., Fox, D.L., Turner, D.B., Stern, A.C., <i>Fundamentals of Air Pollution</i> , Academic Press, 2005.
3	Seinfeld, J.H., Pandis, S.N., <i>Atmospheric Chemistry and Physics</i> , John Wiley, 2006.
4	Lodge, J.P. (Ed.), <i>Methods of Air Sampling and Analysis</i> , CRC Press, 1988.

Web Link:

1	https://onlinecourses.nptel.ac.in/noc23_ce14/preview
---	-------------------------------------------------------------------------------------------------------------------------



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY****KOLHAPUR-416006 (An Autonomous Institute)****B. Tech. Curriculum as per NEP-2020****Second Year B. Tech. Civil Engineering****SEM-III (Academic Year 2024-25)**

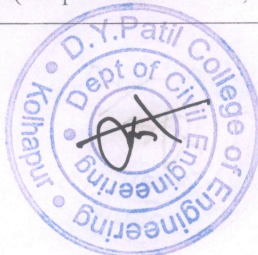
Prerequisite:	Transportation Engineering
----------------------	----------------------------

Course Articulation Matrix:

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and
Program Specific Outcomes (PSOs)

POs/ COs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2	BTL
OECL202.1	3	-	-	-	-	-	-	-	-	-	-	2	-	-	2
OECL202.2	3	-	-	-	-	-	-	-	-	-	-	2	-	-	2
OECL202.3	3	2	-	-	-	-	-	-	-	-	-	1	1	-	3
OECL202.4	3	2	-	-	-	-	-	-	-	-	-	1	-	-	4

Content	Hours
Unit 1. Introduction: Traffic Engineering Objectives and Role of Transportation Demand & Land-Use, Mobility and Accessibility, Traffic Engineering Elements and Components of Traffic, Road Users, Vehicles, Roadways and Traffic Control Devices, Traffic Signs, Delineators and Signals.	6
Unit 2. Traffic Stream Parameters and their Relationships: Traffic Facilities and Traffic Stream Parameters, Traffic Volumes and Time Headways, Traffic Density and Relationships among Macroscopic Parameters, Single Regime Traffic Stream Models, Multi-Regime Models and Characteristics of Interrupted Flow, Analysis of Shock Waves-I, II & III	7
Unit 3. Shockwave and Queuing: Queuing Analysis-I, Queuing Analysis-II, Basic Concepts, Analysis of Basic Freeway and Multi-Lane Highway Segments (as per HCM, 2016) – I, II & III. Analysis of Two-Lane Highway Segments (As per HCM, 2016) – I, II. Analysis of Urban Street Segments (As per HCM, 2016) – I, II & III. Analysis of Single, Intermediate and Two-Lane Roads (As per Indo HCM, 2017), Analysis of Multi Lane Highways (As per Indo HCM, 2017).	9





D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-III (Academic Year 2024-25)

Course Plan

Course Title: Basics of Remote Sensing GIS & GNSS and its Applications	
Platform: NPTEL Swayam by Prof. Poonam S. Tiwari, Indian Institute of Remote Sensing	
Course Code: 231CEOCL203	Semester: III
Teaching Scheme: L-P-T: 2^S-0-0	Credits: 4
ISE + MSE Marks: 20 + 30	ESE Marks: 50

Course Description:

The course includes 'principles of GIS technology with an overview of GIS, Geographic Phenomena, Data Inputting and Editing in GIS, GIS Data Models, GIS System Architecture, Geographic Data Standards and Policies, Topology and Spatial Relationship, Spatial Data Analysis, Spatial Data Quality, Spatial Data Errors, Map Projection and Advanced Geospatial Modeling. The free and open-source software will be used as a platform for demonstrations and development.

Program Specific Outcomes (PSOs):

PSO1	To collect and analyse the spatial and non-spatial data for multiple analysis.
PSO2	To use GIS software for civil engineering applications.

Course Objectives:

1	To study the modern techniques such as remote sensing.
2	To study different tools used to process and analyse the spatial and non-spatial data.
3	To get familiar with technological principles of GNSS with focus on GNSS receivers.
4	To understand the basic principles of Remote Sensing, Earth Observation Sensors and Platforms, Thermal Remote Sensing, Spectral Signatures of Different Land cover Features and Visual Image interpretation and Hyperspectral Remote Sensing technology.
5	To apply the modern technology in the field of civil engineering.





D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-III (Academic Year 2024-25)

Unit 3. Digital Image Processing: Basic Concepts of Rectification and Registration, Enhancement, Classification and accuracy assessment techniques.	8
Unit 4. Global Navigation Satellite System: Introduction to GPS and GNSS, receivers, processing methods, errors and accuracy.	7
Unit 5. Geographical Information System: GIS, databases, topology, spatial analysis and open-source software.	7
Unit 6. RS and GIS Applications: Agriculture and Soil, Forestry and Ecology, Geoscience and Geo-hazards, Marine and Atmospheric Sciences, Urban and Regional Studies and Water Resources.	8

Text Books:

1	Joseph, G. (2005). <i>Fundamentals of Remote Sensing</i> . Universities Press (India) Pvt. Ltd, Hyderabad, India.
2	Lillesand, T. M., Ralph, K. W., Chipman, J. (2008). <i>Remote Sensing and Image Interpretation</i> , 6th edition. John Wiley.

Reference Books:

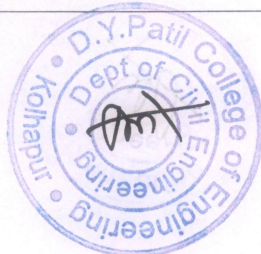
1	Sabins, F. F. (1996). <i>Remote Sensing Principles and Interpretation</i> . Waveland Pr. Inc..
2	Campbell, J. B. (2002). <i>Introduction to Remote Sensing</i> . Guilford Press.
3	American Society of Photogrammetry and Remote Sensing. <i>Remote Sensing</i> , 3rd Edition.
4	Jensen, J. R. (2000). <i>Remote Sensing of the Environment: An Earth Resource Perspective</i> . Prentice Hall, New Jersey.



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY****KOLHAPUR-416006 (An Autonomous Institute)****B. Tech. Curriculum as per NEP-2020****Second Year B. Tech. Civil Engineering****SEM-III (Academic Year 2024-25)****Prerequisite:** Mathematics**Course Articulation Matrix:**Mapping of Course Outcomes (COs) with Program Outcomes (POs) and
Program Specific Outcomes (PSOs)

POs/ COs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2	BTL
HSSML201.1	3	-	-	-	-	-	-	-	-	-	3	-	1	3	2
HSSML201.2	3	-	2	-	-	2	-	1	-	-	3	1	-	3	3
HSSML201.3	3	-	2	-	-	2	-	1	-	-	3	-	-	3	2
HSSML201.4	3	-	2	-	-	-	-	-	-	-	3	1	-	3	2

Content	Hours
Unit 1. Introduction of Project Management Definition of project, Importance, Functions of management w.r.t its influence in construction management, Introduction to Decision Making and Decision Tree. Construction projects- Unique Features, Phases of a Construction Project, Participants/Stakeholders of a Construction Project – Architect, Owner, Constructor, Consultant, Sub contractors. Structure of construction organization – Military/Line Organization, Line and Staff Organization, Departmental/Functional Organization	7
Unit 2. Project Planning and Scheduling Work break-down structure. Techniques of planning- Bar charts. Networks: basic terminology, preparation of CPM networks: computation of float values, critical path. PERT- Assumptions underlying PERT analysis, determining three-time estimates, analysis, slack computations, calculation of probability of completion. Introduction to Project Management Software	8



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY****KOLHAPUR-416006 (An Autonomous Institute)**

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering**SEM-IV (Academic Year 2024-25)****Course Plan**

Course Title: Environmental Engineering	
Course Code: 231CEPCCL204	Semester: IV
Teaching Scheme: L-P-T: 3-0-0	Credits: 3
ISE + MSE Marks: 20 + 30	ESE Marks: 50

Course Description:

Environmental Engineering provides knowledge and skills in the field of water treatment and supply system followed by waste water treatment and disposal system. It also deals with the concepts of Noise Pollution, Municipal Solid Waste Management, Building Sanitation.

Program Specific Outcomes (PSOs):

PSO1	To design and execute cost effective Civil Engineering solutions for sustainable development.
PSO2	To develop entrepreneur skills among the graduates to fulfill the needs of society.

Course Objectives:

1	To study different sources and characteristics of water and wastewater.
2	To know the various treatment processes for water and wastewater.
3	To understand the various components related to transmission and distribution of water.
4	To study various aspects of noise pollution, solid waste management, building sanitation.

Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to...
PCCL204.1	Interpret different sources and characteristics of water and wastewater.
PCCL204.2	Explain the various treatment processes for water and wastewater.
PCCL204.3	Identify various components related to transmission and distribution of water.
PCCL204.4	Identify various aspects of noise pollution, solid waste management, building sanitation etc.





D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-IV (Academic Year 2024-25)

<p>e. Filtration: Mechanism, Head loss development, Negative head loss, Types of filters- slow sand filter, rapid sand filter & pressure filter. Design, Operation & Maintenance of rapid sand filter.</p> <p>f. Disinfection: Theory, Factors affecting disinfection, Types of disinfectants, Types and methods of chlorination, break point chlorination.</p> <p>g. Water Softening Processes: Lime-soda process, Ion exchange.</p> <p>h. Demineralization: Reverse osmosis, Electro-dialysis.</p>	
<p>Unit 3. Conveyance of Water:</p> <p>a. Different types of pipes and joints: Cast iron, wrought iron, steel, concrete, cement lined cast iron, asbestos cement, concrete- their suitability and uses, types of pipe-joints.</p> <p>b. Appurtenances: Sluice, pressure relief, check valves, air relief, drain valves, stop cocks and water tap, fire hydrant and water meters their working and uses.</p> <p>c. Distribution system: Requirement of distribution, classification, layout of distribution system, pipe network analysis.</p> <p>d. Methods of supplying water: Intermittent and continuous service reservoirs types and necessity, design of balancing reservoir.</p> <p>e. Wastage of water: Leakage detection, Factors affecting losses and wastes.</p>	6
<p>Unit 4. Sanitation:</p> <p>a. Introduction: Purpose of sanitation, Necessity of systematic collection, treatment and disposal of wastewater, Definition of different terms in sanitary engineering, Collection systems of sanitation- water-carriage system, Types of wastewater- Domestic, industrial, storm drainage.</p> <p>b. Sewerage System: Classification, merits and demerits; types of sewers based on materials and shapes, design of sewers.</p> <p>c. Sewage characteristics: Characteristics of wastewater- Physical, Chemical and Biological parameters.</p> <p>d. Problem based on BOD</p>	6
<p>Unit 5. Sewage Treatment and Disposal:</p> <p>a. Sewage Treatment Plant Process: Primary, Secondary and Tertiary treatment processes.</p> <p>b. Sludge Treatment: Concept of anaerobic sludge digestion, Types of reactors, dewatering and drying of sludge.</p> <p>c. Low-cost wastewater treatment methods: Septic tank.</p>	10



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY****KOLHAPUR-416006 (An Autonomous Institute)****B. Tech. Curriculum as per NEP-2020****Second Year B. Tech. Civil Engineering****SEM-IV (Academic Year 2024-25)****Course Plan**

Course Title: Soil Mechanics	
Course Code: 231CEPCCL205	Semester: IV
Teaching Scheme: L-P-T: 3-0-0	Credits: 3
ISE + MSE Marks: 20 + 30	ESE Marks: 50

Course Description:

This course is one of the basic sub branches of Civil Engineering. It deals with the behaviour of earth material as an engineering material. The knowledge of this course is applied to the design of foundations, retaining walls, earth dams, clay liners, and geosynthetics. This course also provides lot of scope for research, as earth material available with wide variety of conditions. This course uses the principles of soil mechanics and rock mechanics for the solution of its respective engineering problems. This course is a pre-requisite for the course foundation engineering.

Program Specific Outcomes (PSOs):

PSO1	To design and execute cost effective Civil Engineering solutions for sustainable development.
PSO2	To develop entrepreneur skills among the graduates to fulfill the needs of society.

Course Objectives:

1	To provide students necessary knowledge and skill required for soil classification and index properties determination
2	To introduce students the concepts of permeability, soil compaction and consolidation with field control and application.
3	To impart the knowledge about stress conditions in soil and earth pressure on retaining structures for different soil states and its evaluation.

Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to...
PCCL205.1	Describe the concepts related to index and engineering properties of soil.
PCCL205.2	Assess the index properties of soil, its relationship and explain its significance
PCCL205.3	Evaluate engineering properties of soil.
PCCL205.4	Determine stresses in soil and lateral earth pressure acting on retaining wall.



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY****KOLHAPUR-416006** (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering**SEM-IV** (Academic Year 2024-25)

Unit 4. Compaction and Consolidation Compaction- Definition, Factors affecting compaction, SPT and MPT, field compaction equipment, Field compaction control Consolidation- Spring analogy, Terzaghi's theory of 1D consolidation, C_c , C_v , m_v , a_v , explanation and pre-consolidation pressure, Square root of time and logarithmic time fitting method and related numerical	8
Unit 5. Shear Strength of Soil Mohr's circle, Mohr-coulomb failure criteria, Factors affecting shear strength, Determination of shear strength - Direct Shear Test, Unconfined Compression test, Tri-axial shear test, Vane Shear Test- and related numerical	8
Unit 6. Lateral Earth Pressure Earth pressure Rankine's theory, Active and Passive earth pressure-dry, surcharge, water table cases, Coulomb's theory	7

Text Books:

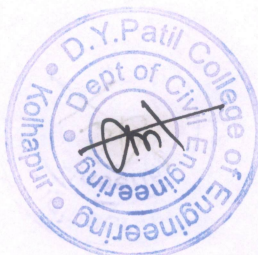
1	Punmia, B. C., Jain, Ashok Kumar, <i>Soil Mechanics and Foundation Engg</i> , Laxmi Publications Pvt Limited, 16th Edition.
2	Das, Braja M., Ramana, G. V., <i>Principles of Soil Dynamics</i> , Cengage Learning, 7th Edition.

Reference Books:

1	Terzaghi, Karl, Mesri, Ralph B., Peck, R. B., <i>Soil Mechanics in Engineering Practice</i> , Wiley, 3rd Edition.
2	Bowles, Joseph E., <i>Foundation Analysis and Design</i> , McGraw-Hill Education (India) Private Limited, 5th Edition.
3	Murthy, V. N. S., <i>Soil Mechanics and Foundation Engg.</i> , CBS Publishers and Distributors, 2nd Edition.
4	Arora, K. R., <i>Soil Mechanics and Foundation Engg.</i> , Standard Publishers Distributors, 2nd Edition.
5	Das, Braja M., Sivakugan, Nagaratnam, Sivakugan, Siva, <i>Introduction to Geotechnical Engineering</i> , Cengage Learning, 6th Edition.
6	Raj, P. Purushottam, <i>Geotechnical Engineering</i> , Dorling Kindersley, 1st Edition.

Web Link:

1	NPTEL website: https://nptel.ac.in/courses/105/107/105107066/
---	----------------------------------------------------------------------------------------------------------------------------





D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-IV (Academic Year 2024-25)

Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to
PCCL206.1	Explain physical properties of ingredients of concrete and their effect on strength and durability of concrete.
PCCL206.2	Explain the fundamentals of process of making good quality concrete and the factors affecting properties of concrete.
PCCL206.3	Solve concrete mix design as per Indian standard code of practice and ACI method.
PCCL206.4	Explain Non-Destructive Testing (NDT) of in-situ concrete and different types of special concretes.

Prerequisite:	Knowledge of General Science, Chemistry, Strength of materials.
----------------------	-----------------------------------------------------------------

Course Articulation Matrix:

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)

POs/ COs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2	BTL
PCCL206.1	3	-	-	-	-	-	1	-	-	-	-	1	-	-	2
PCCL206.2	3	-	-	-	-	-	-	-	-	-	-	1	-	-	2
PCCL206.3	-	3	-	-	-	-	1	1	-	-	-	1	1	1	3
PCCL206.4	3	-	-	-	-	-	-	-	-	-	-	1	-	-	2





D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-IV (Academic Year 2024-25)

Durability of concrete: Permeability and Durability relation, Chemical Attack, Sulphate attack, Attack by Seawater/ Chloride attack, Carbonation of concrete. RCPT test on concrete for durability, Carbonation Test. Creep – meaning and factors affecting it, Shrinkage – meaning, types – plastic, drying, carbonation and factors affecting shrinkage. Non-Destructive Testing (NDT): Schmidt's rebound hammer test, Ultrasonic pulse velocity test.	
Unit 4. Concrete Mix Design Objectives of mix design, different methods of mix design, factors affecting mix proportions, Numerical on Concrete mix design by ACI 211.1-1991, IS Code method using IS 10262-2019, Concrete Mix Design with Superplasticizer, Concrete Mix Design with Fly Ash.	6

Text Books:

1	Shetty, M. S., <i>Concrete Technology</i> , S. Chand Publication.
2	Gambhir, M. L., <i>Concrete Technology</i> , Tata McGraw Hill.

Reference Books:

1	Neville, A. M., Brooks, J. J., <i>Concrete Technology</i> , Pearson Education India.
2	Neville, A. M., <i>Properties of Concrete</i> , Pearson Education India.

IS Codes:

3	IS: 10262-2019, <i>Concrete Mix Proportioning - Guidelines</i> .
4	IS 456-2000, <i>Plain and Reinforced Concrete - Code of Practice</i> .



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY**

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-IV (Academic Year 2024-25)

Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to...
PCCP204.1	Examine the quality parameters of water and waste water as per the code and norms.
PCCP204.2	Design Water Treatment Plant and Sewage Treatment Plant for various qualities as per mentioned design parameters using software.
PCCP204.3	Describe Water Treatment and Sewage Treatment facilities with theoretical knowledge and through site visit.

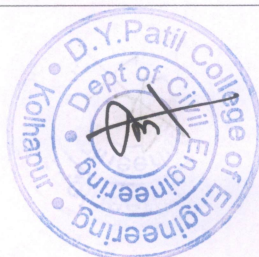
Course Articulation Matrix:

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)

POs/ COs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2	BTL
PCCP204.1	2	2	2	2	-	2	2	2	-	-	-	-	1	-	4
PCCP204.2	2	2	2	2	-	2	2	2	-	-	-	-	1	1	3
PCCP204.3	2	2	2	2	-	2	2	2	-	-	-	-	1	1	3

LIST OF EXPERIMENTS /ACTIVITY

Sr. No.	Title	Hours
A	Characterization of Water and Wastewater (Minimum 6)	
1	Solids (Total Suspended Solids, Total Dissolved Solids, Total Solids)	2
2	Optimum dose of alum by jar test.	2
3	Turbidity	2
4	Chloride content	2
5	Residual Chlorine	2
6	Dissolved Oxygen (DO)	2
7	Biochemical Oxygen Demand (BOD)	3



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY****KOLHAPUR-416006 (An Autonomous Institute)****B. Tech. Curriculum as per NEP-2020****Second Year B. Tech. Civil Engineering****SEM-IV (Academic Year 2024-25)****Course Plan**

Course Title: Soil Mechanics Lab	
Course Code: 231CEPCCP205	Semester: IV
Teaching Scheme: L-P-T: 0-2-0	Credits: 1
ISE Marks: 25	ESE Marks: 25 (OE)

Course Description:

The course explores the principles Geotechnical Engineering through the laboratory experiments on soil. This lab course for PCC geotechnical engineering. In this course student need to identify index and engineering properties of soil. The interpretation of soil results is one of the important aspect of this lab course. This lab course has wide scope in the real life engineering work. The testing of engineering material (earth material) directly deals with the economical aspect of any civil engineering project. This lab course also has potential for research and development.

Program Specific Outcomes (PSOs):

PSO1	To design and execute cost effective Civil Engineering solutions for sustainable development.
PSO2	To develop entrepreneur skills among the graduates to fulfil the needs of society.

Course Objectives:

1	To evaluate index properties of soil and do soil classification
2	To determine engineering properties of soil

Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to...
PCCP205.1	Recognise different types of soil and evaluate its index and engineering properties.
PCCP205.2	Interpret results of soil testing and its behaviour.





D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-IV (Academic Year 2024-25)

Text Books:

1	Punmia, B. C., Jain, Ashok Kumar, <i>Soil Mechanics and Foundation Engg</i> , Laxmi Publications Pvt Limited, 16th Edition.
2	Das, Braja M., Ramana, G. V., <i>Principles of Soil Dynamics</i> , Cengage Learning, 7th Edition.

Reference Books:

1	Terzaghi, Karl, Mesri, Ralph B., Peck, R. B., <i>Soil Mechanics in Engineering Practice</i> , Wiley, 3rd Edition.
2	Bowles, Joseph E., <i>Foundation Analysis and Design</i> , McGraw-Hill Education (India) Private Limited, 5th Edition.
3	Murthy, V. N. S., <i>Soil Mechanics and Foundation Engg.</i> , CBS Publishers and Distributors, 2nd Edition.
4	Arora, K. R., <i>Soil Mechanics and Foundation Engg.</i> , Standard Publishers Distributors, 2nd Edition.
5	Das, Braja M., Sivakugan, Nagaratnam, Sivakugan, Siva, <i>Introduction to Geotechnical Engineering</i> , Cengage Learning, 6th Edition.
6	Raj, P. Purushottam, <i>Geotechnical Engineering</i> , Dorling Kindersley, 1st Edition.

Web Link:

1	NPTEL website: https://nptel.ac.in/courses/105/107/105107066/
---	----------------------------------------------------------------------------------------------------------------------------



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY****KOLHAPUR-416006**(An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering**SEM-IV** (Academic Year 2024-25)**Course Articulation Matrix:**

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)

POs/ COs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2	BTL
MDML202.1	3	-	-	-	-	2	-	-	-	-	-	1	1	-	2
MDML202.2	3	-	-	-	-	2	-	-	-	-	-	1	1	-	2
MDML202.3	3	-	-	-	-	2	-	-	-	-	-	1	1	-	2
MDML202.4	3	-	-	-	-	2	-	-	-	-	-	1	1	-	2

Content	Hours
Unit 1. Transportation Infrastructure Overview of transportation infrastructure - Need for infrastructure planning, Importance of transportation infrastructure in economic development, Role of transportation in urban and regional planning	6
Unit 2. Highway and Railway Engineering Highway: Principles of highway planning, alignment, cross-section, sight distance, Pavement materials, Traffic engineering principles Railway: Track alignment and geometric design, Railway track components and materials, Signalling and control systems in railways, High-speed rail systems and technologies	10
Unit 3. Bridge and Tunnel Engineering Bridge types and classifications, Bridge materials and construction methods. Definition and classification of tunnels, Role of tunnels in transportation, utilities, Environmental and societal impacts of tunnel construction, Principles of tunnel alignment and profile design	8
Unit 4. Airport Engineering Introduction to airport planning, Airport terminal and runway principles, Airport infrastructure and operational considerations, Signal system	6



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY****KOLHAPUR-416006 (An Autonomous Institute)**

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering**SEM-IV (Academic Year 2024-25)****Course Plan**

Course Title: Environmental Studies	
Course Code: 231CEVECL202	Semester: IV
Teaching Scheme: L-P-T: 2-0-0	Credits: 2
ISE + MSE Marks: N.A.	ESE Marks: 50

Course Description:

The main objective of course is to create awareness among students regarding environmental issues and its impact on society. Knowledge regarding environmental components, its degradation and protection of environment is need for sustainable future ahead.

Program Specific Outcomes (PSOs):

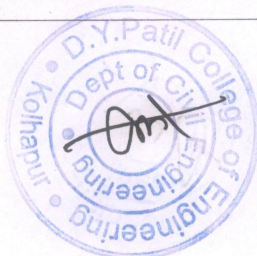
PSO1	To design and execute cost effective Civil Engineering solutions for sustainable development.
PSO2	To develop entrepreneur skills among the graduates to fulfill the needs of society.

Course Objectives:

1	Understand the scope and importance of Environmental Studies and sustainable development
2	Understand connection between environmental health and developmental activities
3	Understand the importance of Environmental Management for its protection through technical and legislative point of view
4	Acquire problem solving skills through visits to different locations, identifying the Environmental problems and proposing solution for societal benefits

Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to
VECL202.1	Explain the scope and importance of Environmental awareness and Sustainable development
VECL202.2	Discuss various Environmental issues due to development





D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY

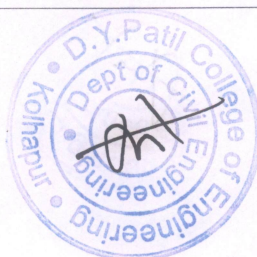
KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-IV (Academic Year 2024-25)

Unit 2: Development and Environmental health I. Natural resources Types (renewable and non-renewable), developmental benefits Forest- Benefits, problems (Deforestation) Biodiversity-- importance, threats, conservation Ecosystems- importance, problem associated with major ecosystems, ecological restoration Air- Benefits, problems (Pollution, climate change) Water- Benefits, problems (Depletion, pollution) Soil/ Land- Benefits, problems (Degradation, loss of fertility, desertification) Mineral- Benefits, problems (Mining, over exploitation, depletion, pollution) Energy resources- Benefits, problems (depletion, energy crisis) II. Urbanization and Environmental Health Urban problems, Solid waste- Effects of MSW, Plastic waste, Hazardous waste, E-waste	10
Unit 3: Environmental Management Renewable energy technologies- current, new (Bio gas, Bio fuel, hydrogen, etc) Pollution abatement – 5R, ZLD, carbon credit, bio remedies Soil/ land reclamation, Sustainable agriculture Concept of EIA, Environmental audit, ISO certification (ISO 14001) Role of CPCB and MPCB in Environmental protection of India Emerging technologies for environmental management- GIS, Remote sensing, Smart bin, IoT integration, Waste-to-Energy Technologies, Recycling Automation, Advanced Data Analytics, Circular Economy Practices, Sustainable Packaging Solutions, Community Engagement and Education, Decentralized Waste Treatment, Zero-Waste Initiatives, Legislative and Regulatory Changes Environmental legislation- Environmental Protection Act, Air Act, Water Act, Solid waste Management Act, Hazardous waste Management Rule, E- Waste (Management) Rules, 2022	12
Unit 4: Field Project Work Case studies based on site visit (Each candidate has to go for field visit and complete a project work on Environmental issues and probable solutions)	3



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY****KOLHAPUR-416006 (An Autonomous Institute)**

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering**SEM-IV (Academic Year 2024-25)****Course Plan**

Course Title: Water Supply Engineering	
Course Code: 231CEOECL204	Semester: IV
Teaching Scheme: L-P-T: 2-0-0	Credits: 2
ISE + MSE Marks: N. A.	ESE Marks: 50

Course Description:

Water supply schemes are a basic necessity of every town/city. With growing concerns over managing urban water demands along with resource sustainability, concept of efficient and smart urban water supply systems is progressively getting more pertinent. This course aims to discuss the technical aspects of modern systems for drinking water treatment and distribution in an integrated way. The course will cover topics from traditional aspects of demand calculations and source selections to the up-to-date treatment methods, along with measures for controlling pollution of water.

Program Specific Outcomes (PSOs):

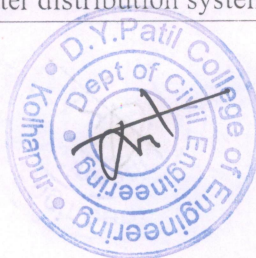
PSO1	To design and execute cost effective Civil Engineering solutions for sustainable development.
PSO2	To develop entrepreneur skills among the graduates to fulfill the needs of society.

Course Objectives:

1	To identify water sources for water supply schemes for city or town
2	To understand various methods of population forecasting
3	To understand the importance of water quality standards in water supply system.
4	To understand different components of water distribution system.

Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to
OECL204.1	Forecast the population and identify water sources for water supply schemes.
OECL204.2	Understand and choose various components in a typical water supply scheme
OECL204.3	Understand and implement various water quality standards in water supply scheme.
OECL204.4	Understand different water distribution system.



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY**

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-IV (Academic Year 2024-25)

Unit 3. Water Treatment Impurities of water – organic and inorganic. classification and examination of water- Physical, Chemical & Bacteriological, Water Quality standards for domestic purpose. Flow diagram of different units of treatment, brief description of constructional details – Working and operation of the following Units – plain sedimentation, sedimentation with coagulation, flocculation, filtration – slow sand filters, Rapid sand filters and pressure filters (No design) Disinfection of water , chlorination.	8
Unit 4. Water Distribution Distribution System: General requirements. Systems of distribution – Gravity systems, combined system, Direct pumping. Storage – Underground, Ground level and overhead service reservoirs – sketch, Necessity and accessories Types of layouts: Dead End, Grid iron, radial and ring valves, their merits and demerits and their suitability.	7

Text Books:

1	Rangwala, S. C., <i>Water Supply & Sanitary Engineering</i> , Charotar Publishing House Pvt. Ltd., New Delhi
2	Garg, S. K., <i>Water Supply Engineering Vol-I</i> , Khanna Publishers
3	Punmia, B. C., <i>Water Supply Engineering</i> , Laxmi Publications Pvt. Ltd. New Delhi.
4	Singh, Gurucharan, <i>Water Supply Engineering Vol-I</i> , Standard Publishers Distributors, New Delhi

Reference Books:

1	Modi, P. N., <i>Environmental Engg.-Vol-I</i> , Standard Book House, New Delhi.
2	Chatterjee, A. K., <i>Water Supply, Waste Disposal and Environmental Pollution Engineering</i> , Khanna publication, New Delhi.
3	Birdie, G. S., <i>Water Supply & Sanitary Engineering</i> , Dhanpat Rai Publishing House, New Delhi.
4	Fair & Geir, <i>Water Supply Engg. Vol-I</i>



**D.Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY**

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-IV (Academic Year 2024-25)

Prerequisite:	General mathematics, Engineering Physics
----------------------	------------------------------------------

Course Articulation Matrix:

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and
Program Specific Outcomes (PSOs)

POs/ COs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2	BTL
OECL205.1	2	1	-	-	-	2	1	-	-	-	1	1	1	-	2
OECL205.2	2	1	-	-	-	2	1	-	-	-	-	1	1	-	3
OECL205.3	2	1	-	-	-	2	1	-	-	-	-	1	1	-	2
OECL205.4	2	1	-	-	2	2	1	-	-	-	1	1	1	-	2

Content	Hours
Unit 1. Introduction to Disaster Management Concepts of Disaster, Hazard, Vulnerability, Resilience, Prevention, Mitigation, Risks, Risk cycle, Risk Reduction, Risk matrix, Impact	06
Unit 2. Natural and Manmade Disasters Natural: Classification, Causes, Impacts & Practical Examples (Case studies) of Natural Disaster - Floods, Draught, Cyclones, Volcanoes, Earthquakes, Tsunami, Landslides, Thunder storms, Forest fires, Avalanches.etc Manmade: Classification, Causes, Impacts & Practical Examples (Case studies) of Man-made Disaster - Technological disasters, Nuclear Disaster, Biological Disasters, Accidents (Air, Sea, Rail & Road), Structural failures (Building and Bridge), War & Terrorism, Armed conflicts.	08
Unit 3. Rehabilitation, Reconstruction and Recovery Reconstruction and Rehabilitation methods as a Means of Development, Damage Assessment, Post Disaster effects and Remedial Measures, Creation of Long-term Job Opportunities and Livelihood Options, Disaster Resistant House Construction,	08





D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-IV (Academic Year 2024-25)

Course Plan

Course Title: Green Building	
Course Code: 231CEOECL206	Semester: IV
Teaching Scheme: L-P-T: 2-0-0	Credits: 2
ISE + MSE Marks: N. A.	ESE Marks: 50

Course Description:

Program Specific Outcomes (PSOs):

PSO1	To design and execute cost effective Civil Engineering solutions for sustainable development.
PSO2	To develop entrepreneur skills among the graduates to fulfill the needs of society.

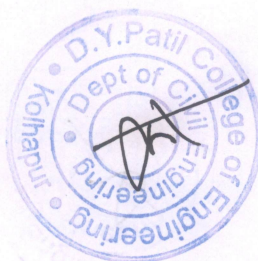
Course Objectives:

1	To make the students familiar with the concepts of sustainable architecture.
2	To implement concepts of energy conservation in construction practices.
3	To make students aware of rating systems in Green building.

Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to...
OECL206.1	Demonstrate the concepts of sustainable architecture.
OECL206.2	Explain concepts of energy conservation in construction practices.
OECL206.3	Discuss rating systems in green building.

Prerequisite:	Building Construction, Building Planning and Design
----------------------	-----------------------------------------------------





D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-IV (Academic Year 2024-25)

Text Books:

1	Dhir, Ravindra K., <i>Sustainable Construction Materials</i> .
---	----------------------------------------------------------------

Reference Books:

1	Mantri, Sandeep, <i>A to Z of Practical Building Construction and Its Management</i> .
2	Kibert, Charles J., <i>Sustainable Construction: Green Building Design and Delivery</i> .
3	Yudelson, Jerry, <i>Green Building A to Z: Understanding the Language of Green Building</i> .
4	Radford, Antony, Bennetts, Helen, Williamson, Terry, <i>Understanding Sustainable Architecture</i> .



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY**

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-IV (Academic Year 2024-25)

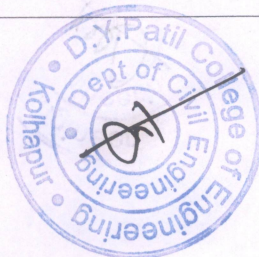
Prerequisite:	Building Construction
----------------------	-----------------------

Course Articulation Matrix:

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)

POs/ COs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2	BTL
HSSML202.1	2	-	-	-	-	2	2	-	-	-	-	-	-	-	2
HSSML202.2	-	-	3	-	-	-	-	-	-	-	3	-	3	-	3
HSSML202.3	-	3	-	3	-	-	-	-	-	-	3	-	-	3	5
HSSML202.4	-	-	-	2	-	2	2	-	-	-	-	-	-	2	4

Content	Hours
Unit 1. Introduction to Construction Economics- Definition and Scope of Construction Economics - Importance and relevance to engineering and construction, The role of economics in construction decision-making. Basic Economic Principles- Supply and demand in construction markets, Market structures: perfect competition, monopoly, and oligopoly. Economic Indicators and Their Impact on Construction- GDP, inflation, interest rates, and employment rates.	7
Unit 2. Cost Concepts and Cost Estimation Types of Costs in Construction - Fixed, variable, direct, and indirect costs, Opportunity cost and sunk cost. Cost Estimation Techniques - Detailed estimates, parametric estimates, and analogous estimates, Cost indices and their application in construction. Budgeting and Cost Control - Preparation of construction budgets, Techniques for cost control and monitoring.	8
Unit 3. Construction Economics Time value of money, Cash flow diagrams, Evaluation Alternatives by Equivalence – Present Worth comparison, Future worth Comparison, EUAC method, Rate of Return Method Payback Period method, Benefit-cost ratio, Break even analysis.	7



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY****KOLHAPUR-416006 (An Autonomous Institute)****B. Tech. Curriculum as per NEP-2020****Second Year B. Tech. Civil Engineering****SEM-IV (Academic Year 2024-25)****Course Plan**

Course Title: Mini Project	
Course Code: 231CEAEC201	Semester: IV
Teaching Scheme: L-P-T: 0-4-0	Credit: 2
ISE Marks: 50	ESE Marks: N. A.

Course Description:

This course describes that the student is required to deliver the mini project on the topic relevant to latest trends in Civil Engineering preferably on the topic of sub specialization. The student shall submit the report in standard format, duly certified for satisfactory completion of the work by the concerned guide and head of the Department/ Institute.

Program Specific Outcomes (PSOs):

PSO1	To design and execute cost effective Civil Engineering solutions for sustainable development.
PSO2	To develop entrepreneur skills among the graduates to fulfil the needs of society.

Course Objectives:

1	To understand and develop students' ability to synthesize knowledge from different civil engineering specialization.
2	To develop professional abilities such as persuasion, confidence, perseverance and communication skill.

Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to
AECP201.1	Demonstrate a sound technical knowledge on the topic of their selected mini project
AECP201.2	Apply skills like data collection, design, report writing, and presentation, as well as professional skills like teamwork, communication, and problem-solving.



**D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY****KOLHAPUR-416006 (An Autonomous Institute)****B. Tech. Curriculum as per NEP-2020****Second Year B. Tech. Civil Engineering****SEM-IV (Academic Year 2024-25)****Course Plan**

Course Title: Material Testing	
Course Code: 231CEVSECP201	Semester: IV
Teaching Scheme: L-P-T: 1-2-0	Credits: 2
ISE Marks: 25	ESE Marks: 25 (OE)

Course Description:

This course broadly includes the study of various tests of different ingredients of concrete like cement, aggregates etc. this course consider the various tests conducted during concrete is in plastic as well as in harden stage to observe various properties of concrete.

Program Specific Outcomes (PSOs):

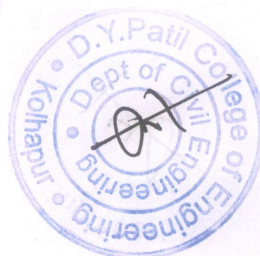
PSO1	To design and execute cost effective Civil Engineering solutions for sustainable development.
PSO2	To develop entrepreneur skills among the graduates to fulfill the needs of society.

Course Objectives:

1	To study ingredients used in concrete and its various properties.
2	To study various mechanical properties and durability of hardened concrete.
3	Develop the sureness level of students to solve concrete mix design problem as per Indian standard code of practice and ACI method.

Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to
VSECP201.1	Execute experiments on aggregate and cement to evaluate their different engineering properties.
VSECP201.2	Execute experiments on concrete to evaluate the properties in fresh and hardened states.
VSECP201.3	Prepare concrete mix design as per IS code of practice and ACI method.





D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY

KOLHAPUR-416006 (An Autonomous Institute)

B. Tech. Curriculum as per NEP-2020

Second Year B. Tech. Civil Engineering

SEM-IV (Academic Year 2024-25)

List of Experiments/Activity

Experiment No	Name of Experiment	Hours
1	Sieve Analysis of Fine and Coarse Aggregates for Natural Sand and Manufactured Sand.	2
2	Determination of Specific Gravity, Water Absorption and Surface (Free) Moisture Content of Natural Aggregates	2
3	Determination of Specific Gravity, Water Absorption and Surface (Free) Moisture Content of manufactured sand.	2
4	Flakiness Index and Elongation Index of Coarse Aggregate	2
5	Fineness of Cement and Standard Consistency of Cement	2
6	Initial and Final Setting Time of Cement, Soundness of Cement	2
7	Compressive Strength of Cement	2
8	Workability test by Slump Test	2
9	Workability test by Compacting Factor Test	2
10	Workability test by Flow Table Test	2
11	Workability test by Vee Bee Test	2
12	Concrete Mix Design with natural and manufactured sand.	2
13	Compressive Strength Test on Concrete	2
14	Non-Destructive Tests on Concrete	2
15	Durability test on concrete by RCPT	2

Text Books:

1	Shetty, M. S., <i>Concrete Technology</i> , S. Chand Publication.
2	Gambhir, M. L., <i>Concrete Technology</i> , Tata McGraw Hill.

Reference Books:

1	Neville, A. M., Brooks, J. J., <i>Concrete Technology</i> , Pearson Education India.
2	Neville, A. M., <i>Properties of Concrete</i> , Pearson Education India.

IS Codes:

3	IS: 10262 - 2019, Concrete Mix Proportioning - Guidelines.
4	IS 456 - 2000 Plain and Reinforced Concrete - Code of Practice.



PRINCIPAL
D. Y. PATIL College of Engineering
And Technology
Kasaba Bawada, Kolhapur.
(An Autonomous Institute)

Course title : Liberal learning	Semester : III
Course code : 23ICECCAP201	Credit : N.A.
Teaching: L-P-T: 0-2-0	ESE Marks : N.A
ISE+MSE Marks : N.A.	Internal 50 marks converted in to Grade

D. Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY, KOLHAPUR
DEPARTMENT OF CIVIL ENGINEERING

“SOFT COMPUTING STUDENT CLUB”

(Aims to develop student's software's skill in the field of civil engineering)



Overview:

Soft computing is the foundation of conceptual intelligence in machines. Unlike hard computing, soft computing is tolerant of imprecision, uncertainty, partial truth, and approximation. The focus of this club is on applications of soft computing methods (software's) in civil engineering. Domains of applications include Structural engineering, Hydraulic engineering, Geotechnical engineering, Transportation engineering, Environmental engineering, Construction Management. This club is run by students in civil engineering department to explore their knowledge, innovative ideas & to compete with expertly in the field of construction world.

Aims:

1. To create interest and enthusiasm for the use of software's among civil engineering students.
2. To provide hands-on experience with soft computing technologies with respective domains of civil engineering.
3. To promote innovation and creativity in the design and analysis.
4. To obtain in any case a flexible ability and adapted to situations of the real world.
5. To build a community of like-minded individuals passionate about Soft computation.

Objectives:

1. Exploring and formulating ideas for real world problems.
2. Training on design & analysis of member of structures to depicting their ideas using design tools.



3. Training on various design & analysis techniques/methods in the various domains of civil engineering.
4. Inspire students to work as an individual or as a team for betterment of work.

Outcomes:

1. Members will gain a comprehensive understanding of various soft computing techniques or methods of various domains of civil engineering.
2. Students will develop practical skills in designing & analyzing members of structures.
3. Members will be better prepared for careers in soft computations of construction projects.
4. A strong, supportive community of soft computation techniques enthusiasts will be established, fostering collaboration and continuous learning.

Evaluation Guidelines

- **Attendance:** Regular attendance in trainings, workshops, and club meetings.
- **Engagement:** Active participation in discussions, Q&A sessions, and group activities.
- **Teamwork:** Collaboration with peers on projects and challenges.
- **Technical Proficiency:** Ability to use relevant software's of domain (e.g., CAD, BIM and REVIT. SKETCH UP, E-TAB, KENLAYER etc.), and troubleshoot common issues.
- **Project Execution:** Successful completion of assigned projects and tasks within the given timeframe.
- **Innovation:** Demonstration of creativity and innovative thinking in project design and implementation.
- **Event Participation:** Involvement in organizing and participating, in competitions, workshops, and awareness campaigns.
- **Community Building:** Contribution to building a supportive and collaborative club environment.
- **Competition Performance:** Participation and performance in internal and external soft computations competitions.
- **Project Showcase:** Presentation of completed projects during club meetings or events.
- **Awards and Accolades:** Recognition received for outstanding work and contributions.



Certification Levels

1. Beginner Level Certification:


- Attend at least 75% of the trainings and workshops.
- Complete a basic knowledge of any software of any domain of civil engineering (e.g., structural engg. hydraulics, transportation engg. construction management).
- Demonstrate understanding of basics of software of any one domain of civil engineering.

2. Intermediate Level Certification:


- Successfully complete design & analysis of given domain projects.
- Participate in at least one internal competition or challenge.

3. Advanced Level Certification:

- Lead a team in a project or competitions based on soft computing.
- Organize or contribute significantly to a club event or workshop.
- Conduct a presentation or seminar on specialized soft computing techniques.
- Publish a Research Article in Journal or Conference.


Mrs. S. P. Patil
Club Coordinator




Dr. K. M. Mane
Head of Department

Overview:

The SKY EYE: GIS-GPS Club is an innovative and dynamic initiative designed for civil engineering students who are passionate about Geographical Information Systems (GIS) and Global Positioning Systems (GPS). The club aims to provide a platform for students to explore, learn, and apply GIS and GPS technologies in real-world scenarios, enhancing their academic and professional skills.

AIM:

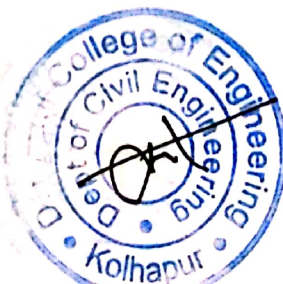
- Cultivate a comprehensive understanding and practical proficiency in Geographical Information Systems (GIS) and Global Positioning Systems (GPS) among civil engineering students.
- Enhance students' technical skills through hands-on training and workshops.
- Foster innovative research in geospatial technologies.
- Promote the application of GIS and GPS in civil engineering projects.
- Prepare students for successful careers in the geospatial and civil engineering fields.
- Facilitate collaborative projects and industry engagement.
- Contribute to the advancement of sustainable and efficient infrastructure development.

Objective:

1. Educational Development:

Enhance students' knowledge and understanding of GIS and GPS technologies.
Provide hands-on experience with the latest GIS and GPS software and tools.
Organize workshops, seminars, and guest lectures by industry experts.

2. Practical Application:



- Encourage the application of GIS and GPS in various civil engineering projects.
- Conduct field trips and practical sessions to collect and analyze spatial data.
- Promote interdisciplinary projects that integrate GIS and GPS with other engineering domains.

3. Research and Innovation:

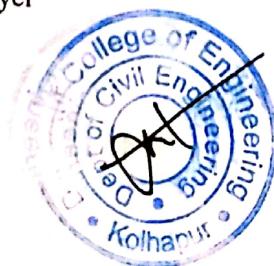
- Foster a research-oriented environment where students can undertake innovative projects.
- Support students in publishing their research findings in reputed journals and conferences.
- Collaborate with faculty and industry partners on cutting-edge GIS and GPS research.

4. Professional Growth:

- Prepare students for careers in geospatial technologies by offering career guidance and networking opportunities.
- Facilitate internships and project collaborations with leading GIS and GPS organizations.
- Develop leadership and teamwork skills through group projects and club activities.

Activities and Events:

- **Workshops and Training Sessions:** Regular workshops to train students on the use of GIS software (such as ArcGIS, QGIS) and GPS devices.
- **Guest Lectures:** Inviting professionals from the geospatial industry to share their insights and experiences.
- **Field Surveys:** Organizing field trips to collect GPS data and apply GIS techniques in real-world settings.
- **Hackathons and Competitions:** Hosting hackathons and competitions to challenge students and encourage innovative solutions.
- **Research Projects:** Facilitating student-led research projects and providing mentorship for their successful completion.
- **Networking Events:** Creating opportunities for students to connect with alumni, industry experts, and potential employer



Membership:

- Open to all civil engineering students with an interest in GIS and GPS technologies.
- Members will have access to exclusive resources, training materials, and project opportunities.
- Active participation in club activities will be encouraged to gain maximum benefit from the club.

Evaluation Criteria:

- **Attendance:** Regular attendance in bootcamps, workshops, and club meetings.
- **Engagement:** Active participation in discussions, Q&A sessions, and group activities.
- **Teamwork:** Effective collaboration with peers on projects and challenges.
- **Technical Proficiency:** Ability to use GIS and GPS tools and software, troubleshoot common issues, and apply geospatial techniques.
- **Project Execution:** Successful completion of assigned projects and tasks within the given timeframe.
- **Innovation:** Demonstration of creativity and innovative thinking in project design and implementation.
- **Event Participation:** Involvement in organizing and participating in competitions, workshops, and awareness campaigns.
- **Community Building:** Contribution to building a supportive and collaborative club environment.
- **Competition Performance:** Participation and performance in internal and external geospatial competitions.

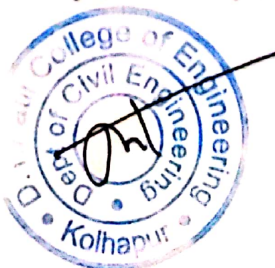
Project Showcase: Presentation of completed projects during club meetings or events.

- **Awards and Accolades:** Recognition received for outstanding work and contributions.

Certification Levels:

1. Beginner Level Certification:

- Attend at least 75% of bootcamps, workshops, and club meetings.



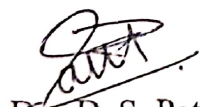
- Complete a basic GIS/GPS project (e.g., mapping a local area using GIS tools).
- Demonstrate understanding of basic GIS/GPS concepts and software operation.

2. Intermediate Level Certification:

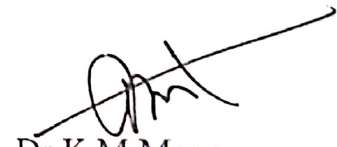
- Successfully complete multiple GIS/GPS projects, including a more complex analysis or mapping project.
- Participate in at least one internal competition or challenge related to GIS/GPS.
- Show proficiency in troubleshooting and using advanced GIS/GPS tools and techniques.

3. Advanced Level Certification:

- Lead a team in a major GIS/GPS project or competition.
- Organize or contribute significantly to a club event, workshop, or seminar.
- Conduct a presentation or seminar on a specialized GIS/GPS topic.
- Publish a research article in a journal or present at a conference related to GIS/GPS.



Dr. D. S. Patil
Club coordinator

Dr K M Mane
Head of Department

Overview:

American Concrete Institute (ACI) has 98 Chapters, 37 student chapters, and nearly 20000 members spanning over 120 Countries. ACI advances knowledge in concrete throughout the world and its wide data base for R & D in concrete. India Chapter of ACI was established on 26th December 1979 by a few enthusiastic concrete technologists to work directly under the patron ship of ACI USA for the "Development's and Advancement of Good Practice of Concrete Technology" in India.

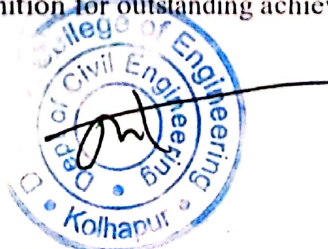
The Student Chapter of D.Y. Patil College of Engineering & Technology, Kasaba Bawada, Kolhapur is formed in 2023 under India Chapter of ACI (ICACI) with 15 numbers of civil student members. The Chapter has a distinctive performance in organizing seminars, symposiums, technical lectures, meetings and workshops with the participation of experts in the field and professional bodies. This student club elaborates the information and dissemination of knowledge about Concrete Technology.

Aims:

1. To encourage student's interest in the study of concrete technology.
2. To provide hands-on experience with advanced concrete technology.
3. To organize and conduct technical events, seminars, workshops, skill training and other related program in concrete technology.
4. To create an innovative research and consultancy in existing and emerging areas of concrete engineering.

Objectives:

1. To train our students to the real-life challenges of concrete engineering.
2. To develop contacts with the local, regional, and national concrete community.
3. Organize seminars and workshops to train students in the basics and advanced concrete techniques.
4. Encourage students for innovative projects and research work in the field of concrete technology
5. Invite guest speakers to stimulate problem-solving and creative thinking.
6. Arrange field trip to acquiring knowledge in real world applications.
7. Offer rewards and recognition for outstanding achievements in participation of



Outcomes:

1. Students will learn civil engineering skills to benefit the local community.
2. Students will acquire the practical knowledge and skills in the civil engineering construction field.
3. Networking events (self-organized or local ACI/ASCE chapter events), and Tutoring and other outreach activities.
4. To benefit for meetings with a student talk or student paper presented in publications related various concrete journals.

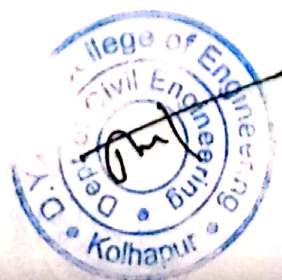
Evaluation Criteria:

- **Attendance:** Regular attendance in boot camps, workshops, and club meetings.
 - **Engagement:** Active participation in discussions, Q&A sessions, and group activities.
 - **Teamwork:** Effective collaboration with peers on projects and challenges.
 - **Technical Proficiency:** Ability to use concrete tech. knowledge,
 - **Project Execution:** Successful completion of assigned projects and tasks within the given timeframe.
 - **Innovation:** Demonstration of creativity and innovative thinking in project design and implementation.
 - **Event Participation:** Involvement in organizing and participating in competitions, workshops, and awareness campaigns.
 - **Community Building:** Contribution to building a supportive and collaborative club environment.
 - **Competition Performance:** Participation and performance in internal and external geospatial competitions.
- Project Showcase:** Presentation of completed projects during club meetings or events.
- **Awards and Accolades:** Recognition received for outstanding work and contributions.

Certification Levels:

1. Beginner level Certification

- Understanding basic knowledge about concrete engineering.
- Attend at least 75% of the boot camps, expert lecture and workshops.




2. Intermediate Level Certification

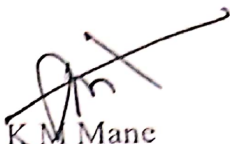
- Conduct the lab visit for basic understanding of concrete engineering.
- Demonstrate one activity of lab performance.

3. Advanced Level Certification

- Complete a single project task as an activity based on concrete engineering.
- Participate in at internal competition or events.


Ms. V.V. Doijad
Club Coordinator




Dr K M Mane
Head of Department