

Walchand College of Engineering

(Government Aided Autonomous Institute)

Vishrambag, Sangli. 416415



**Credit System for
Final Year B.Tech. (Civil Engineering)
Sem-VII and VIII**

2022-23



Walchand College of Engineering

(Government Aided Autonomous Institute)

Credit System for Final Year B.Tech. (Civil Engineering) Sem-VII AY 2022-23

Sr.No.	Category	Course Code	Course Name	L	T	P	I	Hrs	Cr	MSE/LA1	ISE/LA2	ESE	Ext
Professional Core (Theory)													
1	PC	5CV401	Estimating and Costing	2	0	0	0	2	2	30	20	50	
2	PC	5CV402	Reinforced and Prestressed Concrete Design	2	1	0	0	3	3	30	20	50	
3	HS	5CV403	Humanities-4 Legal, IPR, Safety	1	0	0	0	1	1	15	10	25	
Professional Core (Lab)													
4	PC	5CV451	Construction Project Management Lab	0	0	2	0	2	1	30	30	40	OE
5	PC	5CV447	Mini-Project-6 Estimating and Costing	0	0	2	0	2	1	30	30	40	OE
6	PR	5CV448	Mini-Project-7 Concrete Structures Design and Drawings	0	0	2	0	2	1	30	30	40	OE
7	PR	5CV453	Techno-Socio Activity	0	0	0	1	1	1	15	15	20	
8	PR	5CV491	Project-I	0	0	6	0	6	3	30	30	40	OE
9	HS	5CV455	Humanities-3 Project Management	0	0	0	1	1	1	15	15	20	
Professional Elective (Theory)													
10	PE	Refer list	Elective- 4	3	0	0	0	3	3	30	20	50	
Open Elective													
11	OE	Refer list	Open Elective-5	3	0	0	0	3	3	30	20	50	
AICTE Mandatory Courses													
12	MC	5IC401	Constitution of India	2	0	0	0	2	0	30	20	50	
Total				13	1	12	2	28	20				

Notes:

For Theory courses: There shall be MSE, ISE and ESE. The ESE is a separate head of passing.

For Lab courses: There shall be continuous assessment (LA1, LA2, ESE). The ESE is a separate head of passing. The Y in the PoE indicates external component for ESE.

Minimum two AICTE mandatory courses need to be completed for award of degree.

The contact hours of guide for Final Year BTech project are 4 hrs for Sem VII and 8 hours/week for Sem VIII, for 9 students.

For further details, refer to Academic and Examination rules and regulations.



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Elective Course List for Final Year B.Tech. (Civil Engineering) Sem-VII AY 2022-23

Sr.No.	Track	Course Code	Course Name
Elective- 4			
1	Structural Engineering	5CV411	Advanced Structural Analysis
2	Environmental Engineering	5CV412	Advances in Water and Wastewater Treatment
3	Environmental Engineering	5CV413	Air Pollution and Control
4	Infrastructure Engineering	5CV414	Maintenance and Rehabilitation of Structures
5	Transportation Engineering	5CV415	Bridge and Airport Engineering



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Open Elective Course List for Final Year B.Tech. (Civil Engineering) Sem-VII AY 2022-23

Sr.No.	Offering Dept	Sem	Course Code	Course Name
Open Elective 5				
1	Mech	7	5OE429	Industrial Automation
2	Elect	7	5OE443	Industrial Automation NPTEL
3	Eln	7	5OE457	Medical Image Processing
4	CSE	7	5OE471	Cyber Security
5	IT	7	5OE485	Data Visualization & Interpretation



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Credit System for Final Year B.Tech. (Civil Engineering) Sem-VIII AY 2022-23

Sr.No.	Category	Course Code	Course Name	L	T	P	I	Hrs	Cr	MSE/LA1	ISE/LA2	ESE	Ext
Professional Core (Theory)													
1	PC	5CV421	Valuation of Immovable Properties	2	0	0	0	2	2	30	20	50	
Professional Core (Lab)													
2	PC	5CV471	Structural Health Monitoring Lab	0	0	2	0	2	1	30	30	40	OE
3	PR	5CV492	Project-II	0	0	12	0	12	6	30	30	40	POE
Professional Elective (Theory)													
4	PE	Refer list	Elective- 5	3	0	0	0	3	3	30	20	50	
5	PE	Refer list	Elective- 6	3	0	0	0	3	3	30	20	50	
6	PE	Refer list	Elective- 7	3	0	0	0	3	3	30	20	50	
Total				11	0	14	0	25	18				

Notes:

For Theory courses: There shall be MSE, ISE and ESE. The ESE is a separate head of passing.

For Lab courses: There shall be continuous assessment (LA1, LA2, ESE). The ESE is a separate head of passing. The Y in the PoE indicates external component for ESE.

Minimum two AICTE mandatory courses need to be completed for award of degree.

The contact hours of guide for Final Year BTech project are 4 hrs for Sem VII and 8 hours/week for Sem VIII, for 9 students.

For further details, refer to Academic and Examination rules and regulations.



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Elective Course List for Final Year B.Tech. (Civil Engineering) Sem-VIII AY 2022-23

Sr.No.	Track	Course Code	Course Name
Elective- 5			
1	Structural Engineering	5CV431	Advanced Structural Design
2	Structural Engineering	5CV432	Structural Health Monitoring
3	Environmental Engineering	5CV433	Industrial Wastewater Treatment
4	Infrastructure Engineering	5CV434	Contracts Management
5	Transportation Engineering	5CV435	Inteligent Transportation systems
6	Infrastructure Engineering	5CV436	Sustainable and Energy Efficient Building Technologies
Elective- 6			
1	Structural Engineering	5CV437	Computer Applications in Structural Engineering
2	Structural Engineering	5CV438	Geosynthetics And Reinforced Soil Structures
3	Environmental Engineering	5CV439	Environmental Management Systems
4	Transportation Engineering	5CV440	Construction Equipment and Techniques
5	Transportation Engineering	5CV441	Tunnel and Harbour Engineering
6	Transportation Engineering	5CV442	Highway Construction and Pavement Design
Elective- 7			
1	Structural Engineering	5CV443	Advanced Numerical Analysis
2	Structural Engineering	5CV444	Design of Concrete Bridges
3	Structural Engineering	5CV445	Finite Element Methods
4	Infrastructure Engineering	5CV446	Structural Geology



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Tracks and Semester-wise Elective Courses for B.Tech. (Civil Engineering) AY 2022-23

Sr.No.	Sem	Elective	Course Code	Course Name
Environmental Engineering				
1	5	Elective 1	5CV312	Water Distribution System
2	6	Elective 2	5CV333	Municipal Solid Waste Management
3	6	Elective 2	5CV334	Hazardous Waste Management
4	6	Elective 3 Lab	5CV374	Municipal Solid Waste Management Lab
5	6	Elective 3 Lab	5CV375	Hazardous Waste Management Lab
6	6	Elective 3 Lab	5CV379	Sewerage and Sewage Treatment Lab
7	7	Elective- 4	5CV412	Advances in Water and Wastewater Treatment
8	7	Elective- 4	5CV413	Air Pollution and Control
9	8	Elective- 5	5CV433	Industrial Wastewater Treatment
10	8	Elective- 6	5CV439	Environmental Management Systems
Infrastructure Engineering				
1	5	Elective 1	5CV313	Town and Country Planning
2	6	Elective 2	5CV335	Design of Hydraulic Structures
3	6	Elective 2	5CV336	Advanced Surveying
4	6	Elective 3 Lab	5CV376	Design of Hydraulic Structures Lab
5	6	Elective 3 Lab	5CV377	Advanced Surveying Lab
6	6	Elective 3 Lab	5CV378	Foundation Engineering Lab
7	7	Elective- 4	5CV414	Maintenance and Rehabilitation of Structures
8	8	Elective- 5	5CV434	Contracts Management
9	8	Elective- 5	5CV436	Sustainable and Energy Efficient Building Technologies
10	8	Elective- 7	5CV446	Structural Geology

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Tracks and Semester-wise Elective Courses for B.Tech. (Civil Engineering) AY 2022-23

Sr.No.	Sem	Elective	Course Code	Course Name
Structural Engineering				
1	5	Elective 1	5CV311	Structural Mechanics
2	6	Elective 2	5CV331	Advanced Concrete Technology
3	6	Elective 2	5CV332	Earthquake Engineering
4	6	Elective 3 Lab	5CV372	Advanced Concrete Technology Lab
5	6	Elective 3 Lab	5CV373	Earthquake Engineering Lab
6	7	Elective- 4	5CV411	Advanced Structural Analysis
7	8	Elective- 5	5CV431	Advanced Structural Design
8	8	Elective- 5	5CV432	Structural Health Monitoring
9	8	Elective- 6	5CV437	Computer Applications in Structural Engineering
10	8	Elective- 6	5CV438	Geosynthetics And Reinforced Soil Structures
11	8	Elective- 7	5CV443	Advanced Numerical Analysis
12	8	Elective- 7	5CV444	Design of Concrete Bridges
13	8	Elective- 7	5CV445	Finite Element Methods
Transportation Engineering				
1	5	Elective 1	5CV314	Remote Sensing and GIS
2	7	Elective- 4	5CV415	Bridge and Airport Engineering
3	8	Elective- 5	5CV435	Intelligent Transportation systems
4	8	Elective- 6	5CV440	Construction Equipment and Techniques
5	8	Elective- 6	5CV441	Tunnel and Harbour Engineering
6	8	Elective- 6	5CV442	Highway Construction and Pavement Design



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List of Professional Core (Theory) Courses for B.Tech. (Civil) AY 2022-23

Sr.No.	Sem	Course Code	Course Name
Professional Core (Theory) Courses			
1	1	6PH101	Engineering Physics
2	1	6MA101	Engineering Mathematics-I
3	1	6CV101	Engineering Mechanics
4	1	6HS101	Communication Skills
5	1	6BS104	Life Science
6	2	6CH101	Engineering Chemistry
7	2	6MA102	Engineering Mathematics-II
8	2	6ME101	Engineering Graphics and CAD
9	2	6EL101	Basic Electrical Engineering
10	2	6EN101	Basic Electronics Engineering
11	3	6MA201	Applied Mathematics
12	3	6CV202	Fluid Mechanics and Hydraulic Machines
13	3	6CV203	Building Materials and Construction
14	3	6CV204	Engineering Geology
15	3	6CV205	Engineering Surveying
16	3	6CV206	Strength of Materials
17	4	6CV225	Open Channel Hydraulics
18	4	6CV221	Building Planning and Design
19	4	6CV222	Water Resource Engineering
20	4	6CV223	Structural Analysis
21	4	6CV224	Concrete Technology
22	5	5CV301	Soil Mechanics
23	5	5CV302	Water Treatment Technology
24	5	5CV303	Design of Steel Structures
25	5	5CV304	Highway Engineering
26	6	5CV321	Foundation Engineering
27	6	5CV322	Sewerage and Sewage Treatment
28	6	5CV323	Design of Concrete Structures
29	7	5CV401	Estimating and Costing
30	7	5CV402	Reinforced and Prestressed Concrete Design
31	7	5CV403	Humanities-4 Legal, IPR, Safety
32	8	5CV421	Valuation of Immovable Properties



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List of Professional Core (Lab) Courses for B.Tech. (Civil) AY 2022-23

Sr.No.	Sem	Course Code	Course Name
Professional Core (Lab) Courses			
1	1	6CV151	Engineering Mechanics Lab
2	1	6ME152	Workshop Practice
3	1	6CS151	Programming for Problem Solving Lab
4	1	6PH151	Engineering Physics Lab
5	2	6ME151	Engineering Graphics and CAD Lab
6	2	6EL151	Basic Electrical Engineering Lab
7	2	6CH151	Engineering Chemistry Lab
8	2	6EN151	Basic Electronics Engineering Lab
9	3	6CV252	Fluid Mechanics lab
10	3	6CV253	Building Materials and Construction Lab
11	3	6CV254	Engineering Geology lab
12	3	6CV255	Engineering Surveying lab
13	4	6CV271	Hydraulics Lab
14	4	6CV272	Mini Project -1 Building Planning and Design
15	4	6CV273	Advanced Surveying Lab
16	4	6CV274	Strength of Materials Lab
17	5	5CV351	Water Quality Analysis Lab
18	5	5CV352	Soil Mechanics Lab
19	5	5CV345	Mini Project 2: Concrete Technology
20	5	5CV346	Mini Project 3: Repair and Rehabilitation of Structures
21	5	5HS301	Humanities-1: German Language
22	6	5CV371	Highway Materials and Traffic Engineering Lab
23	6	5CV347	Mini Project 4: Civil Engineering Software Application
24	6	5CV348	Mini-Project 5: Steel Structures Design and Drawings
25	6	5HS302	Humanities 2: Human Relations at Work
26	7	5CV451	Construction Project Management Lab
27	7	5CV447	Mini-Project-6 Estimating and Costing
28	7	5CV448	Mini-Project-7 Concrete Structures Design and Drawings
29	7	5CV453	Techno-Socio Activity
30	7	5CV491	Project-I
31	7	5CV455	Humanities-3 Project Management
32	8	5CV471	Structural Health Monitoring Lab
33	8	5CV492	Project-II



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Open Electives offered by B.Tech. (Civil) to other programmes AY 2022-23

Sr.No.	Offering Dept	Sem	Course Code	Course Name
Open Electives Offered				
1	Civil	5	5OE301	Basic Civil Engineering
2	Civil	5	5OE315	Application of Remote Sensing
3	Civil	6	5OE322	Physical Geology
4	Civil	6	5OE323	Diaster Management
5	Civil	7	5OE415	Management for Engineers



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Open Electives available from other programmes to B.Tech. (Civil) AY 2022-23

Sr.No.	Offering Dept	Sem	Course Code	Course Name
Open Electives Available				
1	Mech	5	5OE330	Energy Engineering
2	Mech	5	5OE329	Non-conventional Machining Processes
3	Mech	6	5OE336	3D Printing
4	Mech	7	5OE429	Industrial Automation
5	Elect	5	5OE343	Electrical Machine Technology
6	Elect	5	5OE344	Industrial Instrumentation
7	Elect	6	5OE350	Renewable Energy
8	Elect	6	5OE351	Energy Management
9	Elect	7	5OE443	Industrial Automation NPTEL
10	Eln	5	5OE356	Signals and Systems
11	Eln	5	5OE357	Introduction to Electronics system
12	Eln	6	5OE364	Cyber Physical System
13	Eln	6	5OE365	Biomedical Engineering
14	Eln	7	5OE457	Medical Image Processing
15	CSE	5	5OE372	Data Science using Python
16	CSE	5	5OE371	Software Engineering and Database Essentials
17	CSE	6	5OE378	Fundamentals of Internet of Things
18	CSE	6	5OE379	Artificial Intelligence and Machine Learning
19	CSE	7	5OE471	Cyber Security
20	IT	5	5OE385	Joy of Python Programming
21	IT	5	5OE386	Cloud Computing System
22	IT	6	5OE392	Web Development & Applications
23	IT	6	5OE393	Fundamentals Of Machine Learning
24	IT	7	5OE485	Data Visualization & Interpretation