

Walchand College of Engineering

(Government Aided Autonomous Institute)

Vishrambag, Sangli. 416415



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

2022-23



Walchand College of Engineering

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Credit System for Final Year B.Tech. (Electrical 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	5EL401	Power System Operation and Control	3	0	0	0	3	3	30	20	50	
2	PC	5EL402	Power System Harmonics	2	0	0	0	2	2	30	20	50	
3	HS	5EL403	Humanities-4 Legal, IPR, Safety	1	0	0	0	1	1	15	10	25	
Professional Core (Lab)													
4	PC	5EL451	Power System Operation and Control Lab	0	0	2	0	2	1	30	30	40	OE
5	PC	5EL452	Power System Harmonics Lab	0	0	2	0	2	1	30	30	40	OE
6	PR	5EL453	Techno-Socio Activity	0	0	0	1	1	1	15	15	20	
7	PR	5EL446	Project-1	0	0	6	0	6	3	30	30	40	POE
8	HS	5EL455	Humanities-3 Project Management	0	0	0	1	1	1	15	15	20	
Professional Elective (Theory)													
9	PE	Refer list	Elective- 4	3	0	0	0	3	3	30	20	50	
Professional Elective (Lab)													
10	PE	Refer list	Elective- 4 Lab	0	0	2	0	2	1	30	30	40	
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				14	0	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. (Electrical Engineering) Sem-VII AY 2022-23

Sr.No.	Track	Course Code	Course Name
Elective- 4			
1	Power System	5EL411	HVDC
2	Control System	5EL412	PLC and SCADA
3	Power Electronics and Drives	5EL413	Advanced Power Electronics
Elective- 4 Lab			
1	Power System	5EL456	HVDC Lab
2	Control System	5EL457	PLC and SCADA Lab
3	Power Electronics and Drives	5EL458	Advanced Power Electronics Lab



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Open Elective Course List for Final Year B.Tech. (Electrical 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	Eln	7	5OE457	Medical Image Processing
3	CSE	7	5OE471	Cyber Security
4	IT	7	5OE485	Data Visualization & Interpretation



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Credit System for Final Year B.Tech. (Electrical 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	5EL421	Energy Audit and Management	2	1	0	0	3	3	30	20	50		
Professional Core (Lab)														
2	PR	5EL491	Project-II	0	0	12	0	12	6	30	30	40	POE	
Professional Elective (Theory)														
3	PE	Refer list	Elective-5	2	0	0	0	2	2	30	20	50		
4	PE	Refer list	Elective-6	3	0	0	0	3	3	30	20	50		
5	PE	Refer list	Elective-7	3	0	0	0	3	3	30	20	50		
Professional Elective (Lab)														
6	PE	Refer list	Elective-5 Lab	0	0	2	0	2	1	30	30	40		
Total				10	1	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. (Electrical Engineering) Sem-VIII AY 2022-23

Sr.No.	Track	Course Code	Course Name
Elective-5			
1	Power System	5EL431	Advanced Electrical Machines Design
2	Control System	5EL432	Intelligent Systems and Its Applications
3	Power Electronics and Drives	5EL433	SMART Grids
Elective-5 Lab			
1	Power System	5EL471	Advanced Electrical Machines Design Lab
2	Control System	5EL472	Intelligent Systems and Its Applications Lab
3	Power Electronics and Drives	5EL473	SMART Grid Lab
Elective-6			
1	Power System	5EL434	EHVAC
2	Control System	5EL435	Introduction to Embedded System
3	Power Electronics and Drives	5EL436	Solar and Wind Power Generation
Elective-7			
1	Power System	5EL437	Neural Network and Applications with Software
2	Control System	5EL438	Process Control
3	Power Electronics and Drives	5EL439	FACTS



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

Sr.No.	Sem	Elective	Course Code	Course Name
Control System				
1	5	Elective-1	5EL312	Digital Signal Processing
2	5	Elective-2	5EL315	Linear Algebra
3	5	Elective-2 Lab	5EL354	Linear Algebra Lab
4	6	Elective-3	5EL332	Non Linear and Digital Control System
5	7	Elective- 4 Lab	5EL457	PLC and SCADA Lab
6	7	Elective- 4	5EL412	PLC and SCADA
7	8	Elective-5	5EL432	Inteeligent Systems and Its Applications
8	8	Elective-6	5EL435	Introduction to Embedded System
9	8	Elective-7	5EL438	Process Control
10	8	Elective-5 Lab	5EL472	Intelligent Systems and Its Applications Lab
Power Electronics and Drives				
1	5	Elective-1	5EL313	Electromagnetic Field
2	5	Elective-2	5EL316	Energy Storage Systems for EV
3	5	Elective-2 Lab	5EL355	Energy Storage Systems for EV Lab
4	6	Elective-3	5EL333	Introduction to Electric Vehicle
5	7	Elective- 4 Lab	5EL458	Advanced Power Electronics Lab
6	7	Elective- 4	5EL413	Advanced Power Electronics
7	8	Elective-5	5EL433	SMART Gride
8	8	Elective-6	5EL436	Solar and Wind Power Generation
9	8	Elective-7	5EL439	FACTS
10	8	Elective-5 Lab	5EL473	SMART Grid Lab

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

Sr.No.	Sem	Elective	Course Code	Course Name
Power System				
1	5	Elective-1	5EL311	Illumination Engineering
2	5	Elective-2	5EL314	Electrical Machine Design
3	5	Elective-2 Lab	5EL353	Electrical Machine Design Lab
4	6	Elective-3	5EL331	Artificial Neural Network
5	7	Elective- 4 Lab	5EL456	HVDC Lab
6	7	Elective- 4	5EL411	HVDC
7	8	Elective-5	5EL431	Advanced Electrical Machines Design
8	8	Elective-6	5EL434	EHVAC
9	8	Elective-7	5EL437	Neural Network and Applications with Software
10	8	Elective-5 Lab	5EL471	Advanced Electrical Machines Design Lab



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List of Professional Core (Theory) Courses for B.Tech. (Electrical) 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	6MA203	Applied Mathematics for Electrical Engineers
12	3	6EL201	DC Machines and Transformers
13	3	6EL202	Electrical Circuits
14	3	6EL203	Analog and Digital Circuits
15	3	6EL204	Electrical Generation
16	4	6EL221	AC Machines
17	4	6EL222	Electrical Transmission and Distribution
18	4	6EL223	Power Electronics
19	4	6EL224	Signals and Systems
20	4	6EL225	Electrical Measurement and Instrumentation
21	5	5EL301	Power System Analysis and Stability
22	5	5EL302	Control System Engineering
23	6	5EL321	Power System Protection
24	6	5EL322	Industrial Drives and Control
25	6	5EL323	Microcontroller and Applications
26	7	5EL401	Power System Operation and Control
27	7	5EL402	Power System Harmonics
28	7	5EL403	Humanities-4 Legal, IPR, Safety
29	8	5EL421	Energy Audit and Management



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List of Professional Core (Lab) Courses for B.Tech. (Electrical) 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	6EL251	DC Machines and Transformers Lab
10	3	6EL252	Electrical Circuit Lab
11	3	6EL253	Analog and Digital Circuits Lab
12	3	6EL254	Simulation Lab
13	4	6EL271	AC Machines Lab
14	4	6EL272	Electrical Transmission and Distribution Lab
15	4	6EL273	Power Electronics Lab
16	4	6EL275	Electrical Measurement and Instrumentation Lab
17	5	5EL351	Power System Analysis and Stability Lab
18	5	5EL352	Control System Engineering Lab
19	5	5EL345	Mini-Project-1
20	5	5EL346	Mini-Project-2
21	5	5HS301	Humanities-1: German Language
22	6	5EL371	Power System Protection Lab
23	6	5EL347	Mini-Project-3
24	6	5EL348	Mini-Project-4 Industrial Drives and Control Lab
25	6	5EL372	Microcontroller and Applications Lab
26	6	5HS302	Humanities-2: Human Relations at Work
27	7	5EL451	Power System Operation and Control Lab
28	7	5EL452	Power System Harmonics Lab
29	7	5EL453	Techno-Socio Activity
30	7	5EL446	Project-1
31	7	5EL455	Humanities-3 Project Management
32	8	5EL491	Project-II



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

Sr.No.	Offering Dept	Sem	Course Code	Course Name
Open Electives Offered				
1	Elect	5	5OE343	Electrical Machine Technology
2	Elect	5	5OE344	Industrial Instrumentation
3	Elect	6	5OE350	Renewable Energy
4	Elect	6	5OE351	Energy Management
5	Elect	7	5OE443	Industrial Automation NPTEL



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

Sr.No.	Offering Dept	Sem	Course Code	Course Name
Open Electives Available				
1	Civil	5	5OE301	Basic Civil Engineering
2	Civil	5	5OE315	Application of Remote Sensing
3	Mech	5	5OE330	Energy Engineering
4	Mech	5	5OE329	Non-conventional Machining Processes
5	Mech	6	5OE336	3D Printing
6	Mech	6	5OE337	Basics of Automobile Engineering
7	Mech	7	5OE429	Industrial Automation
8	Eln	6	5OE364	Cyber Physical System
9	Eln	6	5OE365	Biomedical Engineering
10	Eln	7	5OE457	Medical Image Processing
11	CSE	5	5OE372	Data Science using Python
12	CSE	5	5OE371	Software Engineering and Database Essentials
13	CSE	6	5OE378	Fundamentals of Internet of Things
14	CSE	6	5OE379	Artificial Intelligence and Machine Learning
15	CSE	7	5OE471	Cyber Security
16	IT	5	5OE385	Joy of Python Programming
17	IT	5	5OE386	Cloud Computing System
18	IT	6	5OE392	Web Development & Applications
19	IT	6	5OE393	Fundamentals Of Machine Learning
20	IT	7	5OE485	Data Visualization & Interpretation