Walchand College of Engineering

(Government Aided Autonomous Institute)

Vishrambag, Sangli. 416415

***** Platinum Jubilee Year *****

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

2021-22

Walchand College of Engineering, Sangli

(Government Aided Autonomous Institute)

Credit System for Final Year B.Tech. (Electrical Engineering) Sem-VII AY 2021-22

Sr.No.	Category	Course Code	Course Name	L	T	P	I	Hrs	Cr	T1/LA1	T2/LA2	ESE
Professional Core (Theory)												
1	PC		HVDC Transmission	3	0	0	0	3	3	20	20	60
2	PC		Power System Harmonics	3	0	0	0	3	3	20	20	60
Professional Core (Lab)												
3	PC		Power System Harmonics Lab	0	0	2	0	2	1	30	30	40
4	PR		Project I and Seminar	0	0	6	0	6	3	30	30	40
Professional Elective (Theory)												
5	PE	Refer list	Elective 4	3	0	0	0	3	3	20	20	60
6	PE	Refer list	Elective 5	3	0	0	0	3	3	20	20	60
Professional Elective (Lab)												
7	PE	Refer list	Elective 4 Lab	0	0	2	0	2	1	30	30	40
Open Elective												
8	OE	Refer list	Open Elective 3	3	0	0	0	3	3	20	20	60
AICTE Mandatory Courses @												
9	MC		Constitution of India	2	0	0	0	2	0	20	20	60
Value Added Professional Courses #												
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Value Added Life-Skill Courses #												
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			Total	**17**	**0**	**10**	**0**	**27**	**20**			

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Elective Course List for Final Year B.Tech. (Electrical Engineering) Sem-VII AY 2021-22

Sr.No.	Track	Course Code	Course Name
Elective 4			
1	Power System		Intelligent Systems and Its Applications
2	Control System		Process Control
3	Power Electronics and Drives		Advanced Power Electronics
Elective 4 Lab			
1	Power System		Intelligent Systems and Its Applications Lab
2	Control System		Process Control Lab
3	Power Electronics and Drives		Advanced Power Electronics Lab
Elective 5			
1	Power System		Power System Operation and Control
2	Control System		Introduction to Embedded Control
3	Power Electronics and Drives		Power Electronics and Motor Control for Electric Vehicle

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Open Elective Course List for Final Year B.Tech. (Electrical Engineering) Sem-VII AY 2021-22

Sr.No.	Offering Dept	Sem	Course Code	Course Name
Open Elective 3				
1	Mech	7		Automobile Engineering
2	Mech	7		Industrial Automation
3	Mech	7		Aerospace Engineering
4	Eln	7		Medical Image Processing
5	CSE	7		Cyber Security
6	IT	7		Data Visualization & Interpretation

Notes:

For Lab courses: There shall be only internal continuous assessment (LA1, LA2, ESE). LA1 and LA2 together shall be Lab ISE. The ESE is a separate head of passing.
For Theory courses: There shall be two tests (T1 and T2) and one ESE. The ESE is a separate head of passing.

The Value Added Courses are Optional Courses. The mode of teaching (LTPI) is decided by the resource person.
The credits earned from these courses will be shown on grade card. For SGPA and CGPA calculation, these courses will be excluded.
The list of Value added courses will be updated from time to time. The courses may be on paid basis. These courses will be offered as per availability of faculty.

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

The contact hours of each Final Year BTech project batch (of min 5 students) with the guide shall be 1 hour/week for Sem VII and 2 hours/week for Sem VIII.

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

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Credit System for Final Year B.Tech. (Electrical Engineering) Sem-VIII AY 2021-22

Sr.No.	Category	Course Code	Course Name	L	T	P	I	Hrs	Cr	T1/LA1	T2/LA2	ESE
Professional Core (Theory)												
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Professional Core (Lab)												
1	PC		Summer Internship	0	0	0	1	1	1	30	30	40
2	PR		Project 2	0	0	16	0	16	8	30	30	40
Professional Elective (Theory)												
3	PE	Refer list	Elective 6	2	0	0	0	2	2	20	20	60
4	PE	Refer list	Elective 7	2	0	0	0	2	2	20	20	60
Value Added Professional Courses #												
--												
Value Added Life-Skill Courses #												
--												
			Total	**4**	**0**	**16**	**1**	**21**	**13**			

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Elective Course List for Final Year B.Tech. (Electrical Engineering) Sem-VIII AY 2021-22

Sr.No.	Track	Course Code	Course Name
Elective 6			
1	Control System		Electric Vehicle Design
2	Power Electronics and Drives		Solar and Wind Power Generation

Notes:

For Lab courses: There shall be only internal continuous assessment (LA1, LA2, ESE). LA1 and LA2 together shall be Lab ISE. The ESE is a separate head of passing.
For Theory courses: There shall be two tests (T1 and T2) and one ESE. The ESE is a separate head of passing.

The Value Added Courses are Optional Courses. The mode of teaching (LTPI) is decided by the resource person.
The credits earned from these courses will be shown on grade card. For SGPA and CGPA calculation, these courses will be excluded.
The list of Value added courses will be updated from time to time. The courses may be on paid basis. These courses will be offered as per availability of faculty.

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

The contact hours of each Final Year BTech project batch (of min 5 students) with the guide shall be 1 hour/week for Sem VII and 2 hours/week for Sem VIII.

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Tracks and Semester-wise Elective Courses for B.Tech. (Electrical Engineering) AY 2021-22

Sr.No.	Sem	Elective	Course Code	Course Name
Control System				
1	5	Elective 1		Digital Signal Processing
2	5	Elective 2		Linear Algebra
3	5	Elective 2 Lab		Linear Algebra Lab
4	6	Elective 3		Non Linear and Digital Control System
5	7	Elective 4		Process Control
6	7	Elective 5		Introduction to Embedded Control
7	7	Elective 4 Lab		Process Control Lab
8	8	Elective 6		Electric Vehicle Design
Power Electronics and Drives				
1	5	Elective 1		Electromagnetic Field
2	5	Elective 2		Energy Storage Systems for EV
3	5	Elective 2 Lab		Energy Storage Systems for EV Lab
4	6	Elective 3		Introduction to Electric Vehicle
5	7	Elective 4		Advanced Power Electronics
6	7	Elective 5		Power Electronics and Motor Control for Electric Vehicle
7	7	Elective 4 Lab		Advanced Power Electronics Lab
8	8	Elective 6		Solar and Wind Power Generation

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Tracks and Semester-wise Elective Courses for B.Tech. (Electrical Engineering) AY 2021-22

Sr.No.	Sem	Elective	Course Code	Course Name
Power System				
1	5	Elective 1		Illumination Engineering
2	5	Elective 2		Electrical Machine Design
3	5	Elective 2 Lab		Electrical Machine Design Lab
4	6	Elective 3		Artificial Neural Network
5	7	Elective 4		Intelligent Systems and Its Applications
6	7	Elective 5		Power System Operation and Control
7	7	Elective 4 Lab		Intelligent Systems and Its Applications Lab

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Mapping betwwen Courses and GATE Topics for B.Tech. (Electrical Engineering) AY 2021-22

Sr.No.	Sem	Course Code	Course Name	GATE Mapping
GATE Mapping				
1	1	5MA101	Engineering Mathematics-I	Engineering Mathematics
2	1	5CS101	Programming for Problem Solving	Engineering Mathematics
3	2	5MA102	Engineering Mathematics-II	Engineering Mathematics
4	2	5EL101	Basic Electrical Engineering	Electrical Circuits
5	3	5MA201	Probability and Statistics	Engineering Mathematics
6	3	5EL201	DC Machines and Transformers	Electrical Machines
7	3	5EL202	Electrical Circuits	Electrical Circuits
8	3	5EL203	Analog and Digital Circuits	Analog and Digital Electronics
9	3	5EL204	Electrical Measurement	Electrical and Electronic Measurements
10	3	5EL205	Instrumentation	Electrical and Electronic Measurements
11	4	5EL221	Applied Mathematics for Electrical Engineers	Engineering Mathematics
12	4	5EL222	AC Machines	Electrical Machines
13	4	5EL223	Electrical Transmission and Distribution	Power Systems
14	4	5EL224	Power Electronics	Power Electronics
15	4	5EL225	Signals and Systems	Signals and Systems
16	5		Power System Analysis and Stability	Power Systems
17	5		Control System Engineering	Control Systems
18	6		Power System Protection	Power Systems

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List of Professional Core (Theory) Courses for B.Tech. (Electrical Engineering) AY 2021-22

Sr.No.	Sem	Course Code	Course Name
Professional Core (Theory) Courses			
1	1	5PH101	Engineering Physics
2	1	5MA101	Engineering Mathematics-I
3	1	5CV101	Engineering Mechanics
4	1	5HS101	Communication Skills
5	1	5CS101	Programming for Problem Solving
6	2	5CH101	Engineering Chemistry
7	2	5MA102	Engineering Mathematics-II
8	2	5ME101	Engineering Graphics and CAD
9	2	5EL101	Basic Electrical Engineering
10	2	5EN101	Arduino Based Systems
11	2	5BS104	Life Science
12	3	5MA201	Probability and Statistics
13	3	5EL201	DC Machines and Transformers
14	3	5EL202	Electrical Circuits
15	3	5EL203	Analog and Digital Circuits
16	3	5EL204	Electrical Measurement
17	3	5EL205	Instrumentation
18	4	5EL221	Applied Mathematics for Electrical Engineers
19	4	5EL222	AC Machines
20	4	5EL223	Electrical Transmission and Distribution
21	4	5EL224	Power Electronics
22	4	5EL225	Signals and Systems
23	5		Power System Analysis and Stability
24	5		Control System Engineering
25	6		Power System Protection
26	6		Industrial Drives and Control
27	6		Microcontroller and Applications
28	7		HVDC Transmission
29	7		Power System Harmonics

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List of Professional Core (Lab) Courses for B.Tech. (Electrical Engineering) AY 2021-22

Sr.No.	Sem	Course Code	Course Name
Professional Core (Lab) Courses			
1	1	5CV151	Engineering Mechanics Lab
2	1	5ME152	Workshop Practice
3	1	5CS151	Programming for Problem Solving Lab
4	1	5PH151	Engineering Physics Lab
5	2	5ME151	Engineering Graphics and CAD Lab
6	2	5EL151	Basic Electrical Engineering Lab
7	2	5CH151	Engineering Chemistry Lab
8	2	5EN151	Arduino Based Systems Lab
9	3	5EL251	DC Machines and Transformers Lab
10	3	5EL252	Electrical Circuit and Measurement Lab
11	3	5EL253	Analog and Digital Circuits Lab
12	4	5EL272	AC Machines Lab
13	4	5EL273	Electrical Transmission and Distribution Lab
14	4	5EL274	Power Electronics Lab
15	4	5EL275	Presentation and Report Writing
16	5		Power System Analysis and Stability Lab
17	5		Control System Engineering Lab
18	5		Mini-Project 1
19	5		Mini-Project 2
20	5		Humanities 1: German Language
21	6		Power System Protection Lab
22	6		Mini-Project 3
23	6		Mini-Project 4: Industrial Drives and Control Lab
24	6		Microcontroller and Applications Lab
25	6		Humanities 2: Human Relations at Work
26	7		Power System Harmonics Lab
27	7		Project I and Seminar
28	8		Summer Internship
29	8		Project 2

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Open Electives offered by B.Tech. (Electrical Engineering) to other programmes AY 2021-22

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

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Open Electives available from other programmes to B.Tech. (Electrical Engineering) AY 2021-22

Sr.No.	Offering Dept	Sem	Course Code	Course Name
Open Electives Available				
1	Civil	5		Basic Civil Engineering
2	Civil	5		Application of Remote Sensing
3	Mech	5		Energy Engineering
4	Mech	5		Non-conventional Machining Processes
5	Mech	6		3D Printing
6	Mech	6		Basics of Automobile Engineering
7	Mech	7		Automobile Engineering
8	Mech	7		Industrial Automation
9	Mech	7		Aerospace Engineering
10	Eln	6		Cyber Physical System
11	Eln	6		Biomedical Engineering
12	Eln	7		Medical Image Processing
13	CSE	5		Data Science using Python
14	CSE	5		Software Engineering and Database Essentials
15	CSE	6		Fundamentals of Internet of Things
16	CSE	6		Artificial Intelligence and Machine Learning
17	CSE	7		Cyber Security
18	IT	5		Joy of Python Programming
19	IT	5		Cloud Computing System
20	IT	6		Web Development & Applications
21	IT	6		Fundamentals Of Machine Learning
22	IT	7		Data Visualization & Interpretation