

Walchand College of Engineering

(Government Aided Autonomous Institute)

Vishrambag, Sangli. 416415



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

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

2021-22



Walchand College of Engineering, Sangli

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Credit System for Final Year B.Tech. (Electronics 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		Power Electronics and Drives	3	0	0	0	3	3	20	20	60
2	PC		Real Time Operating System	2	0	0	0	2	2	20	20	60
Professional Core (Lab)												
3	PC		Power Electronics and Drives Lab	0	0	2	0	2	1	30	30	40
4	PC		Real Time Operating System Lab	0	0	2	0	2	1	30	30	40
5	PR		Project 1 and Seminar	0	0	6	0	6	3	30	30	40
Professional Elective (Theory)												
6	PE	Refer list	Elective 5	3	0	0	0	3	3	20	20	60
7	PE	Refer list	Elective 6	3	0	0	0	3	3	20	20	60
Open Elective												
8	OE	Refer list	Open Elective-3	3	0	0	0	3	3	20	20	60
Value Added Professional Courses #												
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Value Added Life-Skill Courses #												
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Total				14	0	10	0	24	19			



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

Sr.No.	Track	Course Code	Course Name
Elective 5			
1	Communication & Signal Processing		Microwave Engineering
2	Communication & Signal Processing		Adaptive Signal Processing
3	Embedded System & VLSI		Analog CMOS IC Design
Elective 6			
1	Communication & Signal Processing		Optical Communication
2	Power Eln & Control		Advanced Control System
3	Embedded IoT and Networking		TCP/IP and Industrial Protocols



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Open Elective Course List for Final Year B.Tech. (Electronics 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	Elect	7		Industrial Automation NPTEL
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. (Electronics 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)													
1	PR		Project 2	0	0	16	0	16	8	30	30	40	
Professional Core (Lab)													
2	PC		Tecno-Social Activities	0	0	0	1	1	1	30	30	40	
Professional Elective (Theory)													
3	PE	Refer list	Elective 7	2	0	0	0	2	2	20	20	60	
4	PE	Refer list	Elective 8	2	0	0	0	2	2	20	20	60	
AICTE Mandatory Courses @													
5	MC		Constitution of India	0	0	0	0	0	0	0	0	0	
Value Added Professional Courses #													
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Value Added Life-Skill Courses #													
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Total				4	0	16	1	21	13				



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

Sr.No.	Track	Course Code	Course Name
Elective 7			
1	Communication & Signal Processing		Radar and Navigation
2	Communication & Signal Processing		Wavelet and Filter Banks
Elective 8			
1	Communication & Signal Processing		Satellite Communication
2	Embedded IoT and Networking		Internet of Things

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

Sr.No.	Sem	Elective	Course Code	Course Name
Communication & Signal Processing				
1	5	Elective 1		Biomedical Instrumentation
2	5	Elective 2		Information Theory and coding
3	5	Elective 2 Lab		Information Theory and Coding Lab
4	6	Elective 3		Optical Communication
5	6	Elective 4		Mobile Communication Engineering
6	6	Elective 4		Digital Image Processing
7	6	Elective 4 Lab		Mobile Communication Engineering Lab
8	6	Elective 4 Lab		Digital Image Processing Lab
9	7	Elective 5		Microwave Engineering
10	7	Elective 5		Adaptive Signal Processing
11	7	Elective 6		Optical Communication
12	8	Elective 7		Radar and Navigation
13	8	Elective 7		Wavelet and Filter Banks
14	8	Elective 8		Satellite Communication
Embedded IoT and Networking				
1	5	Elective 2		Object Oriented Programming
2	5	Elective 2		Computer Organization and Architecture
3	5	Elective 2 Lab		Object Oriented Programming Lab
4	5	Elective 2 Lab		Computer Organization and Architecture Lab
5	6	Elective 3		Introduction to Machine Learning
6	6	Elective 3		Design and Analysis of Algorithm
7	7	Elective 6		TCP/IP and Industrial Protocols
8	8	Elective 8		Internet of Things

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

Sr.No.	Sem	Elective	Course Code	Course Name
Embedded System & VLSI				
1	5	Elective 1		Microelectronics
2	6	Elective 4		CMOS Digital VLSI Design
3	6	Elective 4 Lab		CMOS Digital VLSI Design Lab
4	7	Elective 5		Analog CMOS IC Design
Power Eln & Control				
1	5	Elective 1		Linear Algebra
2	7	Elective 6		Advanced Control System



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

Sr.No.	Sem	Course Code	Course Name	GATE Mapping
GATE Mapping				
1	1	5PH101	Engineering Physics	Electronic Devices
2	1	5MA101	Engineering Mathematics-I	Diff. equations
3	1	5PH151	Engineering Physics Lab	Electronic Devices
4	2	5MA102	Engineering Mathematics-II	Differential Equations, Statistics
5	2	5EL101	Basic Electrical Engineering	Electrical Machines
6	2	5EN101	Arduino Based Systems	Digital Circuits
7	2	5EL151	Basic Electrical Engineering Lab	Electrical Machines
8	2	5EN151	Arduino Based Systems Lab	Digital Circuits
9	3	5MA201	Probability and Statistics	Statistics
10	3	5EN201	Electronic Circuit Analysis and Design-I	Electronic Devices
11	3	5EN202	Circuit Theory	Network solution methods
12	3	5EN203	Digital Electronics	Digital Circuits
13	3	5EN205	Sensors and Actuators	Electrical & Electronic Measurements
14	3	5EN251	Electronic Circuit Analysis and Design-I Lab	Electronic Devices
15	3	5EN253	Digital Electronics Lab	Digital Systems
16	4	5EN221	Electronic Circuit Analysis and Design-II	Electronic Devices
17	4	5EN222	Signals and Systems	Continuous Time Signals
18	4	5EN223	Communication Engineering	Random Processes, Digital Communication
19	4	5EN224	Microcontroller Peripherals and Interfacing	Analog and Digital Electronics
20	4	5EN225	Control Systems	Control Systems
21	4	5EN271	Electronic Circuit Analysis and Design-II Lab	Analog Circuits
22	4	5EN273	Communication Engineering and Control Systems Lab	Random Processes, Digital Communication, Control Systems
23	4	5EN274	Microcontroller Peripherals and Interfacing Lab	Analog and Digital Electronics
24	5		Digital Signal Processing	Continuous Time Signals
25	5		Elective 1	Linear Algebra, Electronic Devices
26	5		Digital Signal Processing Lab	Continuous Time Signals
27	5		Mini-Project 1	Linear Algebra, Electronic Devices
28	6		Electromagnetic Engineering	Electrostatics; Maxwell's equations



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29	6		FPGA based System Design	Analog Devices
30	6		Elective 4	Analog Devices
31	6		FPGA based System Design Lab	Analog Devices
32	7		Power Electronics and Drives	Power Electronics
33	7		Power Electronics and Drives Lab	Power Electronics
34	7		Project 1 and Seminar	Analog and Digital Circuits/ Communication/ Control Systems
35	7		Elective 5	Analog Circuits, Transmission Lines , Waveguides
36	7		Elective 6	Analog Circuits, Transmission Lines , Waveguides
37	8		Elective 7	Analog Circuits, Control Systems
38	8		Tecno-Social Activities	Analog and Digital Circuits/ Communication/ Control Systems



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List of Professional Core (Theory) Courses for B.Tech. (Electronics 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	5EN201	Electronic Circuit Analysis and Design-I
14	3	5EN202	Circuit Theory
15	3	5EN203	Digital Electronics
16	3	5EN204	Data Structures and Algorithms
17	3	5EN205	Sensors and Actuators
18	4	5EN221	Electronic Circuit Analysis and Design-II
19	4	5EN222	Signals and Systems
20	4	5EN223	Communication Engineering
21	4	5EN224	Microcontroller Peripherals and Interfacing
22	4	5EN225	Control Systems
23	5		Digital Signal Processing
24	5		Embedded System Design
25	6		Electromagnetic Engineering
26	6		FPGA based System Design
27	7		Power Electronics and Drives
28	7		Real Time Operating System
29	8		Project 2



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List of Professional Core (Lab) Courses for B.Tech. (Electronics 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	5EN251	Electronic Circuit Analysis and Design-I Lab
10	3	5EN252	Simulation Tools
11	3	5EN253	Digital Electronics Lab
12	3	5EN254	Data Structures and Algorithm Lab
13	4	5EN271	Electronic Circuit Analysis and Design-II Lab
14	4	5EN273	Communication Engineering and Control Systems Lab
15	4	5EN274	Microcontroller Peripherals and Interfacing Lab
16	4	5EN276	Presentation and Report Writing
17	5		Digital Signal Processing Lab
18	5		Embedded System Design Lab
19	5		Mini-Project 1
20	5		Mini-Project 2
21	5		Humanities 1: Human Relations at work
22	6		FPGA based System Design Lab
23	6		Mini-Project 3
24	6		Mini-Project 4
25	6		Humanities 2: German Language
26	7		Power Electronics and Drives Lab
27	7		Real Time Operating System Lab
28	7		Project 1 and Seminar
29	8		Tecno-Social Activities



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

Sr.No.	Offering Dept	Sem	Course Code	Course Name
Open Electives Offered				
1	Eln	5		Signals and Systems
2	Eln	5		Introduction to Electronics system
3	Eln	6		Cyber Physical System
4	Eln	6		Biomedical Engineering
5	Eln	7		Medical Image Processing



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

Sr.No.	Offering Dept	Sem	Course Code	Course Name
Open Electives Available				
1	Mech	5		Energy Engineering
2	Mech	5		Non-conventional Machining Processes
3	Mech	6		3D Printing
4	Mech	6		Basics of Automobile Engineering
5	Mech	7		Automobile Engineering
6	Mech	7		Industrial Automation
7	Mech	7		Aerospace Engineering
8	Elect	5		Electrical Machine Technology
9	Elect	5		Industrial Instrumentation
10	Elect	6		Renewable Energy
11	Elect	6		Energy Management
12	Elect	7		Industrial Automation NPTL
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