

# **Walchand College of Engineering**

*(Government Aided Autonomous Institute)*

Vishrambag, Sangli. 416415



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

**2022-23**



# Walchand College of Engineering

(Government Aided Autonomous Institute)

## Credit System for Final Year B.Tech. (Electronics 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
<b>Professional Core (Theory)</b>													
1	PC	5EN401	Power Electronics and Drives	3	0	0	0	3	3	30	20	50	
2	PC	5EN402	Real Time Operating Systems	2	0	0	0	2	2	30	20	50	
3	HS	5EN403	Humanities-4 Legal, IPR, Safety	1	0	0	0	1	1	15	10	25	
<b>Professional Core (Lab)</b>													
4	PC	5EN451	Power Electronics and Drives Labs	0	0	2	0	2	1	30	30	40	POE
5	PC	5EN452	Real Time Operating Systems Lab	0	0	2	0	2	1	30	30	40	POE
6	PR	5EN445	Mini-Project-5	0	0	2	0	2	1	30	30	40	OE
7	PR	5EN453	Techno-Socio Activity	0	0	0	1	1	1	15	15	20	
8	PR	5EN446	Project-I	0	0	6	0	6	3	30	30	40	POE
9	HS	5EN455	Humanities-3 Project Management	0	0	0	1	1	1	15	15	20	
<b>Professional Elective (Theory)</b>													
10	PE	Refer list	Elective-5	2	0	0	0	2	2	30	20	50	
<b>Professional Elective (Lab)</b>													
11	PE	Refer list	Elective-5 Lab	0	0	2	0	2	1	30	30	40	
<b>Open Elective</b>													
12	OE	Refer list	Open Elective-5	3	0	0	0	3	3	30	20	50	
<b>Total</b>				<b>11</b>	<b>0</b>	<b>14</b>	<b>2</b>	<b>27</b>	<b>20</b>				

**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.**



# Walchand College of Engineering

(Government Aided Autonomous Institute)

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

Sr.No.	Track	Course Code	Course Name
<b>Elective-5</b>			
1	Communication & Signal Processing	5EN411	Microwave Engineering
2	Embedded System & VLSI	5EN412	Embedded Linux
3	Embedded System & VLSI	5EN413	Analog CMOS IC Design
<b>Elective-5 Lab</b>			
1	Communication & Signal Processing	5EN454	Microwave Engineering Lab
2	Embedded System & VLSI	5EN456	Embedded Linux Lab
3	Embedded System & VLSI	5EN457	Analog CMOS IC Design Lab



# Walchand College of Engineering

(Government Aided Autonomous Institute)

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

Sr.No.	Offering Dept	Sem	Course Code	Course Name
<b>Open Elective 5</b>				
1	Mech	7	5OE429	Industrial Automation
2	Elect	7	5OE443	Industrial Automation NPTEL
3	CSE	7	5OE471	Cyber Security
4	IT	7	5OE485	Data Visualization & Interpretation



# Walchand College of Engineering

(Government Aided Autonomous Institute)

## Credit System for Final Year B.Tech. (Electronics 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
<b>Professional Core (Theory)</b>													
1	PC	5EN421	TCP/IP and Advanced Protocol	3	0	0	0	3	3	30	20	50	
<b>Professional Core (Lab)</b>													
2	PR	5EN492	Project-II	0	0	12	0	12	6	30	30	40	POE
<b>Professional Elective (Theory)</b>													
3	PE	Refer list	Elective-6	3	0	0	0	3	3	30	20	50	
4	PE	Refer list	Elective-7	3	0	0	0	3	3	30	20	50	
5	PE	Refer list	Elective-8	3	0	0	0	3	3	30	20	50	
<b>AICTE Mandatory Courses</b>													
6	MC	5IC401	Constitution of India	2	0	0	0	2	0	30	20	50	
<b>Total</b>				<b>14</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>26</b>	<b>18</b>				

### 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.**



# Walchand College of Engineering

(Government Aided Autonomous Institute)

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

Sr.No.	Track	Course Code	Course Name
<b>Elective-6</b>			
1	Embedded System & VLSI	5EN431	System on Chip
2	Embedded System & VLSI	5EN432	Digital System Engineering
<b>Elective-7</b>			
1	Communication & Signal Processing	5EN433	Radar and Navigation
2	Embedded IoT and Networking	5EN434	Data Analytics
<b>Elective-8</b>			
1	Embedded IoT and Networking	5EN436	Internet of Things
2	Embedded System & VLSI	5EN435	Satellite Communication



# Walchand College of Engineering

(Government Aided Autonomous Institute)

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

Sr.No.	Sem	Elective	Course Code	Course Name
<b>Communication &amp; Signal Processing</b>				
1	5	Elective 1	5EN311	Biomedical Instrumentation
2	5	Elective 1	5EN313	Linear Algebra
3	5	Elective 2	5EN314	Information Theory and coding
4	5	Elective-2 Lab	5EN353	Information Theory and Coding Lab
5	6	Elective 3	5EN332	Optical Communication
6	6	Elective 4	5EN334	Mobile Communication Engineering
7	6	Elective 4	5EN336	Digital Image Processing
8	6	Elective 4 Lab	5EN372	Mobile Communication Engineering Lab
9	6	Elective 4 Lab	5EN374	Digital Image Processing Lab
10	7	Elective-5	5EN411	Microwave Engineering
11	7	Elective-5 Lab	5EN454	Microwave Engineering Lab
12	8	Elective-7	5EN433	Radar and Navigation
<b>Embedded IoT and Networking</b>				
1	5	Elective 2	5EN315	Object Oriented Programming
2	5	Elective-2 Lab	5EN354	Object Oriented Programming Lab
3	6	Elective 3	5EN331	Introduction to Machine Learning
4	6	Elective 3	5EN333	Design and Analysis of Algorithm
5	8	Elective-7	5EN434	Data Analytics
6	8	Elective-8	5EN436	Internet of Things

(Continued..)



# Walchand College of Engineering

(Government Aided Autonomous Institute)

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

Sr.No.	Sem	Elective	Course Code	Course Name
<b>Embedded System &amp; VLSI</b>				
1	5	Elective 1	5EN312	Microelectronics
2	5	Elective 2	5EN316	Computer Organization and Architecture
3	5	Elective-2 Lab	5EN355	Computer Organization and Architecture Lab
4	6	Elective 4	5EN335	CMOS Digital VLSI Design
5	6	Elective 4 Lab	5EN373	CMOS Digital VLSI Design Lab
6	7	Elective-5	5EN412	Embedded Linux
7	7	Elective-5	5EN413	Analog CMOS IC Design
8	7	Elective-5 Lab	5EN456	Embedded Linux Lab
9	7	Elective-5 Lab	5EN457	Analog CMOS IC Design Lab
10	8	Elective-6	5EN431	System on Chip
11	8	Elective-6	5EN432	Digital System Engineering
12	8	Elective-8	5EN435	Satellite Communication





# Walchand College of Engineering

(Government Aided Autonomous Institute)

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

Sr.No.	Sem	Course Code	Course Name
<b>Professional Core (Theory) Courses</b>			
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	6MA202	Probability and Statistics
12	3	6EN201	Electronic Circuit Analysis and Design-I
13	3	6EN202	Circuit Theory
14	3	6EN203	Digital Electronics
15	3	6EN204	Electronic Instrumentation
16	4	6EN221	Electronic Circuit Analysis and Design-II
17	4	6EN222	Signals and Systems
18	4	6EN223	Communication Engineering I
19	4	6EN224	Microcontroller and Peripheral Interfacing
20	4	6EN225	Control Systems
21	5	5EN301	Digital Signal Processing
22	5	5EN302	Embedded System Design
23	6	5EN321	Electromagnetic Engineering
24	6	5EN322	FPGA based System Design
25	7	5EN401	Power Electronics and Drives
26	7	5EN402	Real Time Operating Systems
27	7	5EN403	Humanities-4 Legal, IPR, Safety
28	8	5EN421	TCP/IP and Advanced Protocol



# Walchand College of Engineering

(Government Aided Autonomous Institute)

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

Sr.No.	Sem	Course Code	Course Name
<b>Professional Core (Lab) Courses</b>			
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	6EN255	Data Structures and Algorithms Lab
10	3	6EN251	Electronic Circuit Analysis and Design-I Lab
11	3	6EN252	Digital Electronics Lab
12	3	6EN253	Python Programming
13	4	6EN271	Electronic Circuit Analysis and Design-II Lab
14	4	6EN273	Communication Engineering I Lab
15	4	6EN274	Microcontroller and Peripheral Interfacing Lab
16	4	6EN275	Control Systems Lab
17	5	5EN351	Digital Signal Processing Lab
18	5	5EN352	Embedded System Design Lab
19	5	5EN345	Mini-Project-1
20	5	5EN346	Mini-Project-2
21	5	5HS302	Humanities-1: Human Relations at work
22	6	5EN371	FPGA based System Design Lab
23	6	5EN347	Mini-Project-3
24	6	5EN348	Mini-Project-4
25	6	5HS301	Humanities-2: German Language
26	7	5EN451	Power Electronics and Drives Labs
27	7	5EN452	Real Time Operating Systems Lab
28	7	5EN445	Mini-Project-5
29	7	5EN453	Techno-Socio Activity
30	7	5EN446	Project-I
31	7	5EN455	Humanities-3 Project Management
32	8	5EN492	Project-II



# Walchand College of Engineering

(Government Aided Autonomous Institute)

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

Sr.No.	Offering Dept	Sem	Course Code	Course Name
<b>Open Electives Offered</b>				
1	Eln	5	5OE356	Signals and Systems
2	Eln	5	5OE357	Introduction to Electronics system
3	Eln	6	5OE364	Cyber Physical System
4	Eln	6	5OE365	Biomedical Engineering
5	Eln	7	5OE457	Medical Image Processing



# Walchand College of Engineering

(Government Aided Autonomous Institute)

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

Sr.No.	Offering Dept	Sem	Course Code	Course Name
<b>Open Electives Available</b>				
1	Mech	5	5OE330	Energy Engineering
2	Mech	5	5OE329	Non-conventional Machining Processes
3	Mech	6	5OE336	3D Printing
4	Mech	6	5OE337	Basics of Automobile Engineering
5	Mech	7	5OE429	Industrial Automation
6	Elect	5	5OE343	Electrical Machine Technology
7	Elect	5	5OE344	Industrial Instrumentation
8	Elect	6	5OE350	Renewable Energy
9	Elect	6	5OE351	Energy Management
10	Elect	7	5OE443	Industrial Automation NPTEL
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