



DELHI SKILL AND ENTREPRENEURSHIP UNIVERSITY

**DIPLOMA IN ELECTRONICS
ENGINEERING**

SYLLABUS DOCUMENT



EFFECTIVE FROM ACADEMIC YEAR 2021-22

Program Summary

Diploma in Electronics Engineering is a three-year programme where the students are taught about the study and application of electronics, electricity and electromagnetism. It is a form of engineering associated with electronic circuits, devices and the equipment and systems that use them. This course has been designed to provide in-depth knowledge of theory & practicality in the emerging & latest areas of electronics to meet the challenges of continuous technological changes and sound knowledge of the latest areas. This course not only helps to acquire in-depth knowledge in Electronics Engineering but also offers the opportunity to specialize in one of the four subfields viz.

(1) Communication Engineering

(2) Medical Electronics

(3) Digital Electronics

(4) Instrumentation & Control Engineering

Program Vision

- To create highly skilled, proficient, creative, innovative and entrepreneurial electronics engineers having professional ethics, passion and competence to adapt the latest transformations in technology.
- To enhance the technical capabilities of students through learning and practicing in the relevant domain to become effective and successful technical engineers to cope-up with the changing technical demand of the market and to build a better foundation of students for higher studies.

Program Outcome

1. Basic Knowledge/Skills

- a. Demonstrate knowledge of electronics engineering.
- b. Demonstrate an ability to identify, formulate and solve industrial, community and research problems.
- c. Design and conduct experiments, as well as analyze and interpret data.
- d. Design a System, Component, or Process to meet desired needs within realistic constraints such as Economic, Environmental, Social, Ethical, Manufacturability, and Sustainability.
- e. Demonstrate skills to use modern devices, software and equipment to analyse and solve problems.
- f. Understand impact of Electrical engineering on societal and contemporary issues.
- g. Demonstrate confidence to learn by self and exhibit ability for life-long learning.

2. Technical Skills

- Acquire the basic knowledge of analog electronics
- Acquire the basic knowledge of specialized communication engineering
- Acquire the basic knowledge and designing digital electronics
- Acquire the basic knowledge of microprocessor and microcontroller.
- Acquire the basic knowledge of specialization in communication engineering.
- Acquire the basic knowledge of specialization in medical electronics
- Acquire the basic knowledge of specialization in instrumentation & control
- Acquire the basic knowledge of specialization in digital electronics

3. Software Skill and Project Skills

Software Skill:

- Understand the basic fundamentals of IT
- Able to operate the computer efficiently
- Understand the computer programming in Python
- Write the computer programming in C++ or in JAVA

Project Skills:

- Design minor projects to enhance their practical knowledge and skills by development of small electronics components, devices and circuitry and or based on microprocessor based applications
- Prepare Industrial training reports by visiting different industries for solving live problems faced in electronics industries by applying the knowledge and skills obtained through the diploma course electronics.
- Design Major Project in the areas of Digital system design, microprocessor based system, Software projects related to electronics field, Communication based projects, any other project related to electronics industries.

4. Personality Traits and Ethics

- Understand human values and development of overall personality
- Develop ethical understanding

5. Soft Skills

- Acquire the basic knowledge of communication and life skills.
- Acquire the basic knowledge of reasoning and analytical skills.
- Acquire the knowledge of skills required to work in an organization.
- Learn skills such as adaptability, leadership, teamwork, time management, emotional intelligence, and collaboration.

Credit Scheme

Credit structure for the program of Diploma in Electronics (with specialization in Communication Engineering, Medical Electronics, Instrumentation & Control, Digital Electronics)

Semester I (Common to all specialization)						
S No.	Subject Code	Course Titles	Hours/week			Total Credits
			L	T	P	
1	EC-HS101	Face The World (FTW) Skills - I	-	-	-	3
2	EC-HS102	English Communication - I	2	0	0	2
3	EC-HS103	Sports And Yoga	0	0	2	1
4	EC-FC101	Applied Mathematics-I	3	1	0	4
5	EC-FC102	Applied Physics	2	0	2	3
6	EC-FC103	Basic Electrical Engineering	3	0	3	4.5
6	EC-FC104	Fundamentals of Programming	3	0	3	4.5
8	EC-AU101	Workshop Project	0	0	2	0
Total			11	1	12	22

Semester II (Common to all specialization)						
S No.	Subject Code	Course Titles	Hours/week			Total Credits
			L	T	P	
1	EC-HS201	Face The World (FTW) Skills-II	-	-	-	1
2	EC-HS202	English Communication -II	0	0	2	1
3	EC-HS203	Environmental Studies	-	-	-	1
4	EC-FC201	Applied Mathematics- II	3	1	0	4
5	EC-FC202	Electrical Machines	3	0	3	4.5
6	EC-FC204	Basic Engineering Graphics	0	0	6	3
7	EC-PC201	Analog Electronics -I	3	0	3	4.5
8	EC-FC203	Electrical & Electronics Workshop	0	0	4	2
Total			09	1	18	21

Semester III (Common to all specialization)						
S No.	Subject Code	Course Titles	Hours/week			Total Credits
			L	T	P	
1	EC-HS301	Face The World Skills-III	-	-	-	1
2	EC-HS302	English Communication-III	0	0	2	1
3	EC-HS303	Indian Constitution	-	-	-	1
4	EC-PC301	Analog Electronics - 2	3	0	3	4.5
5	EC-PC302	Digital Electronics	3	0	3	4.5
6	EC-PC303	Network Analysis & Transmission Lines	3	0	3	4.5
7	EC-PR301	Pcb Design & Fabrication	0	0	2	1
8	EC-PC304	Electronic Instruments & Troubleshooting	3	0	3	4.5
Total			12	0	16	22

Semester IV (Communication Engineering)						
S No.	Subject Code	Course Titles	Hours/week			Total Credits
			L	T	P	
1	EC-HS401	Face The World Skills-IV	-	-	-	1
2	EC-HS402	English Communication-IV	0	0	2	1
3	EC-HS403	Human Values	-	-	-	1
4	EC-HS401-C	Entrepreneurship & Startup	3	1	0	4
5	EC-PC401-C	Analog Electronics-3	3	0	3	4.5
6	EC-PC402-C	Microprocessor & Microcontrollers	3	0	3	4.5
7	EC-PE403-C	Fundamentals Of Communication Engineering	3	0	3	4.5
8	EC-PR401-C	Minor Project	0	0	3	1.5
Total			12	1	14	22

Semester IV (Medical Electronics)						
S No.	Subject Code	Course Titles	Hours/week			Total Credits
			L	T	P	
1	EC-HS401	Face The World Skills-IV	-	-	-	1
2	EC-HS402	English Communication-IV	0	0	2	1
3	EC-HS403	Human Values	-	-	-	1.5
4	EC-HS401-M	Entrepreneurship & Startup	3	1	0	4
5	EC-PC401-M	Analog Electronics - 3	3	0	3	4.5
6	EC-PC402-M	Microprocessor & Microcontrollers	3	0	3	4.5
7	EC-PE401-M	Bio Signal & Systems	3	0	3	4.5
8	EC-PR401-M	Minor Project	0	0	3	1.5
Total			12	1	14	22.5

Semester IV (Instrumentation & Control)						
S No.	Subject Code	Course Titles	Hours/week			Total Credits
			L	T	P	
1	EC-HS401	Face The World Skills-IV	-	-	-	1
2	EC-HS402	English Communication-IV	0	0	2	1
3	EC-HS403	Human Values	-	-	-	1.5
4	EC-HS401-I	Entrepreneurship & Startup	3	1	0	4
5	EC-PC401-I	Analog Electronics - 3	3	0	3	4.5
6	EC-PC402-I	Microprocessor & Microcontrollers	3	0	3	4.5
7	EC-PE401-I	Transducers & Sensors	3	0	3	4.5
8	EC-PR401-I	Minor Project	0	0	3	1.5
Total			12	1	14	22.5

Semester IV (Digital Electronics)						
S No.	Subject Code	Course Titles	Hours/week			Total Credits
			L	T	P	
1	EC-HS401	Face The World Skills-IV	-	-	-	1
2	EC-HS402	English Communication-IV	0	0	2	1
3	EC-HS403	Human Values	-	-	-	1.5
4	EC-HS401-D	Entrepreneurship & Startup	3	1	0	4
5	EC-PC401-D	Analog Electronics 3	3	0	3	4.5
6	EC-PE401-D	Microprocessor & Microcontrollers	3	0	3	4.5
7	EC-PC402-D	Fundamentals Of Communication Engineering	3	0	3	4.5
8	EC-PR401-D	Minor Project	0	0	3	1.5
Total			12	1	14	22.5

Semester V (Communication Engineering)						
S. No.	Subject Code	Course Titles	Hours/week			Total Credits
			L	T	P	
1	EC-HS501	English Communication-V	0	0	2	1
2	EC-HS502	Face The World Skills-V	-	-	-	1
3	EC-PE501-C	Computer Networking	3	0	3	4.5
4	EC-PE502-C	Electronic Communication System	3	0	3	4.5
5	EC-PE503-C	Elective – 1	3	0	3	4.5
6	EC-SI501-C	Summer Internship	0	0	2	1
7	EC-PC501-C	Consumer Electronics	3	0	3	4.5
Total			12	0	16	21

Semester V (Medical Electronics)						
S No	Subject Code	Course Titles	Hours/week			Total Credits
			L	T	P	
1	EC-HS501	English Communication-V	0	0	2	1
2	EC-HS502	Face The World Skills-V	-	-	-	1
3	EC-PE501-M	Medical Imaging Instruments	3	0	3	4.5
4	EC-PC501-M	Fundamentals Of Communication Engineering	3	0	3	4.5
5	EC-PE502-M	Therapeutic Equipment	3	0	3	4.5
6	EC-PE503-M	Hospital Engineering & Design	3	0	3	4.5
7	EC-SI501-M	Summer Internship	0	0	2	1
Total			12	0	16	21

Semester V (Instrumentation & Control)						
S No.	Subject Code	Course Titles	Hours/week			Total Credits
			L	T	P	
1	EC-HS501	English Communication-V	0	0	2	1
2	EC-HS502	Face The World Skills-V	-	-	-	1
3	EC-PE501-I	Industrial Instrumentation	3	0	3	4.5
4	EC-PE502-I	Control System Engineering	3	0	3	4.5
5	EC-PE503-I	Process Components And Control	3	0	3	4.5
6	EC-PE504-I	Plc, Scada & Digital Control	3	0	3	4.5
7	EC-SI501-I	Summer Internship	0	0	2	1
Total			12	0	16	21

Semester V (Digital Electronics)						
S No.	Subject Code	Course Titles	Hours/week			Total Credits
			L	T	P	
1	EC-HS501	English Communication-V	0	0	2	1
2	EC-HS502	Face The World Skills-V	-	-	-	1
3	EC-PE501-D	Digital System Design	3	0	3	4.5
4	EC-PE502-D	VLSI Design	3	0	3	4.5
5	EC-PE503-D	Elective – 1	3	0	3	4.5
6	EC-SI501-D	Summer Internship	0	0	2	1
7	EC-PE504-D	Computer Hardware & Peripherals	3	0	3	4.5
Total			12	0	16	21

Semester VI (Communication Engineering)						
S. No.	Subject Code	Course Titles	Hours/week			Total Credits
			L	T	P	
1	EC-PE601-C	Data Communication & Networking	3	0	3	4.5
2	EC-OE601-C	Elective 2	2	0	3	3.5
3	EC-PC601-C	Digital System Design	3	0	3	4.5
4	EC-PR601-C	Major Project	0	0	3 Contact hrs + 3 outside hrs	3
5	EC-PE602-C	Computer Hardware And Peripherals	3	0	3	4.5
6		English Communication-VI	0	0	2	1
7		Face The World Skills-VI	-	-	-	1
Total			11	0	17	22

Semester VI (Medical Electronics)						
S No.	Subject Code	Course Titles	Hours/week			Total Credits
			L	T	P	
1	EC- PC601-M	Digital System Design	3	0	3	4.5
2	EC-PE601-M	Medical Lab Equipment	3	0	3	4.5
3	EC-PE602-M	Advance Medical Systems	3	0	3	4.5
4	EC-PR601-M	Major Project	0	0	3 Contact hrs + 3 outside hrs	3
5	EC-OE601-M	Elective-1	2	0	3	3.5
6		English Communication-VI	0	0	2	1
7		Face The World Skills-VI	-	-	-	1
Total			11	0	17	22

Semester VI (Instrumentation & Control)						
S No.	Subject Code	Course Titles	Hours/week			Total Credits
			L	T	P	
1	EC-PC601-I	Power Electronics & Industrial Drives	3	0	3	4.5
2	EC-PE601-I	Instrumentation Applications (Biomedical, Optical & Analytical)	3	0	3	4.5
3	EC-PE602-I	Robotics & Flexible Automation	3	0	3	4.5
4	EC-PR601-I	Major Project	0	0	3 contact hrs + 3 outside hrs	3
5	EC-OE601-I	Elective-1	2	0	3	3.5
6		English Communication-VI	0	0	2	1
7		Face The World Skills-VI	-	-	-	1
TOTAL			11	0	17	22

Semester VI (Digital Electronics)						
S No.	Subject Code	Course Titles	Hours/week			Total Credits
			L	T	P	
1	EC- PE601-D	Advanced Microprocessor	3	0	3	4.5
2	EC-PC601-D	Oop Using C ++	3	0	3	4.5
3	EC-PE602-D	Industrial Electronics	3	0	3	4.5
4	EC-PR601-D	Major Project	0	0	3 contact hrs +3 hrs outside	3
5	EC-OE601-D	Elective- 2 (Open)	2	0	3	3.5
6		English Communication-VI	0	0	2	1
7		Face The World Skills-VI	-	-	-	1
Total			11	0	17	22

Note - The syllabus for English Communication I, Face the World Skills, Applied Mathematics I and Applied Mathematics II, Applied Physics, Basic Engineering Graphics are given separately and other common subjects are provided separately

Elective Subjects (For Communication Engineering)

Elective-1:

1. Microwave Engineering
2. Optical Communication
3. Mobile Communication
4. VLSI Design

Elective-2:

1. Internet of Things
2. OOPs (C++)
3. Programming in (JAVA)
4. Microcomputers and applications

Elective Subjects (For Medical Electronics)

Elective-1:

1. Microcomputer & applications
2. Electronic Communication system.
3. PLC, SCADA & Digital Control
4. Computer Networking

Elective Subjects (For Instrumentation & Control)

Elective-1:

1. Microcomputer & applications
2. Medical Imaging Instruments

Elective Subjects (For Digital Electronics)

Elective 1:

1. Communication System
2. Maintenance and troubleshooting of equipment.
3. Microprocessor-Based System Design

Elective 2:

1. Mobile Communication

2. Microcomputer & Applications
3. Medical Lab Equipment
4. Medical Imaging Instruments