

**GUJARAT TECHNOLOGICAL UNIVERSITY, AHMEDABAD, GUJARAT**

**COURSE CURRICULUM  
COURSE TITLE: PROJECT-I  
(COURSE CODE: 3351107)**

<b>Diploma Programmes in which this course is offered</b>	<b>Semester in which offered</b>
Electronics & Communication	5 <sup>th</sup> Semester

### 1. RATIONALE

provide an opportunity to the students for applying the knowledge and technical skills acquired by identifying real life problem of the industries /research organization / society as a whole and providing it's innovative solution with partial implementation , which is economically and technologically viable.

### 2. COMPETENCY

The IDP-I/UDP-I is to be selected by the students and the problem is to be identified for providing solution under the mentoring of the institute Guide and the Industry mentor to develop following competencies...

- i. Co-creation & Interpersonal abilities**
- ii Design & Troubleshooting**
- iii Programming/simulation/ debugging skills**
- iv Developing PCB design/soldering skills**
- v Documentation & Presentation skill**

### 3. Course Outcomes

At the end of the course, student will able to

- i. Create familiarity with the industry personnel & industrial environment as well as processes.
- ii Survey the related literature.
- iii Define the problem and the objectives of the project.
- iv Suggest various design alternatives and justification of the selection of the design methodology for the problem solution along with design specifications.
- v Modeling and analysis of the proposed solution.
- vi. Simulate, Design and debugging of the circuit
- vii Partial Implementation of the proposed solution
- viii. Develop program logic of the proposed solution
- ix. Locate the problem and troubleshoot.
- x. Work in team cohesively & effectively
- xi Prepare project report having organized documentation.
- xii. Prepare & deliver presentation.
- xii. Enhance awareness for latest technologies and tools
- ix. Visualize the roadmap of the further development.

#### 4. Teaching and Examination Scheme

Teaching Scheme (In Hours)			Total Credits (L+T+P)	Examination Scheme				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE	PA	ESE	PA	100
0	0	4	04	0	0	40	60	

**Legends:** L-Lecture; T – Tutorial/Teacher Guided Theory Practice; P - Practical; C – Credit ESE - End Semester Examination; PA - Progressive Assessment.

#### 5. COURSE DETAILS

Stage	Major Learning Outcomes	Topics and Sub-topics
<b>Stage-I</b> Shodhyatra*	1.a. Interact with the industry/research organization personnel 1.b. Gather information and organise	1.1 Information gathering through websites and media. 1.2 Identification of Industry/research organization 1.3 Visiting Industry/research organization 1.4 Creating awareness about the industrial premises , personnel , processes and products 1.5 Review of literature
<b>Stage- II</b> Problem Definition & Submission	2.a. Define & explain Problem definition 2.b. Prepare & submit problem definition	2.1 Defining problem in consultation with institute guide & industry mentor 2.2 Preparing problem definition statement in the prescribed format of GTU and submit in soft and hard copy.
<b>Stage- III</b> Design Solution	3.a. Conceive and draw General block diagram of solution . 3.b. Develop circuit diagram in detail. 3.c. Write algorithm and draw flowchart	3.1 Block Diagram of project 3.2 Draw & Develop circuit diagram using circuit design softwares/tools 3.3 Development of algorithm and flowchart if applicable.
<b>Stage – IV</b> Hardware/software simulation and partial Implementation	4.a. Design PCB Layout 4.b. Simulate circuit 4.c. Assemble circuit 4.d. Test the Hardware circuit 4.e. Troubleshoot the hardware circuit.	4.1 PCB Layout preparation using software tools 4.2 Circuit simulation 4.3 Partial implementation using Breadboard or General purpose PCB 4.4 Test and troubleshoot hardware if applicable.
<b>Stage – V</b> Documentation	5.a. Prepare project report 5.b. Prepare PPT presentation	5.1 Prepare project report as per GTU guideline.

Stage	Major Learning Outcomes	Topics and Sub-topics
on & Presentation	5.c. Present project work	5.2 Prepare PPT and present as per schedule.

\*Note: Shodhyatra(Two weeks - Immediately after completion of Sem-IV End Semester Exam)

## 6. SUGGESTED SPECIFICATION TABLE WITH HOURS & MARKS (THEORY)

Unit No.	Unit Title	Contact Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total Marks
I	Shodhyatra	04	00	10	05	15
II	Problem Definition & Submission	08	05	10	05	20
III	Design Solution	20	10	10	10	30
IV	Hardware/software simulation and partial Implementation	16	00	10	10	20
V	Documentation & Presentation	08	00	05	10	15
	Total	56	15	45	40	100

**Legends:** R = Remembrance; U = Understanding; A = Application and above levels (Revised Bloom's taxonomy)

**Note:** This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

## 7. SUGGESTED LIST OF STUDENT ACTIVITIES

Following is the list of proposed student activities like:

- i. Prepare and submit project definition document in prescribed format.
- ii. Visit industry regularly.
- iii. Get help from innovative council/research organization for design solution.
- iv. Report regarding stage wise progress to institute guide/industry mentor regularly.
- v. Continuous practicing of latest circuit design and simulation tools/software.
- vi. Study of intellectual property rights for patenting the project.

## 8. SPECIAL INSTRUCTIONAL STRATEGIES (if any)

- i. One day IDP awareness workshop.
- ii. Industry survey.
- iii. Seminar/Symposium
- iv. Group discussion/Debate
- v. Expert lectures of resource persons from industries/research organizations.
- vi. Arranging Industrial visit.

## 9. SUGGESTED LEARNING RESOURCES

### A) List of Magazines.

- i. Electronics for you.

**ii. Electronic design news.**

**iii. Elector electronics.**

**iv. Electronics project manuals**

**B) List of Major Equipment/ Instrument with Broad Specifications**

- 1) Computer
- 2) Digital storage oscilloscope (DSO).
- 3) Spectrum analyzer.
- 4) Universal programmer.
- 5) Wide band function generator.
- 6) Soldering station with drill machine
- 7) PCB formulation kit
- 8) Clip on meter/ Multimeter / Power Supplies /
- 9) IC Tester / Continuity Tester /Component Tester
- 10) LCR Q –meters
- 11) Other equipments as per the need of project work.

**C) List of Software/Learning Websites**

<http://www.electronicproject.org>

<http://www.circuiteasy.com>

<http://www.electronics-project-design.com>

<http://www.electronicsschematic.com>

( The above list of websites are merely examples for the reference, students should go through many other similar websites .)

**11. COURSE CURRICULUM DEVELOPMENT COMMITTEE**

**Faculty Members from Polytechnics**

- **Prof. D.H.AHIR** , Sr.Lecturer , Dept of EC engineering, G.P.,Rajkot  
And Associate Dean- GTU Zone-4
- **Prof.K.N.VAGHELA**, Sr.Lecturer ,Dept of EC engineering,  
G.P.,Ahmedabad
- **Prof. M.S.DAVE** , Sr.Lecturer ,Dept of EC engineering, G.P.,Ahmedabad

**Coordinator and Faculty Members from NITTTR Bhopal**