GUJARAT TECHNOLOGICAL UNIVERSITY (GTU)

Competency-focused Outcome-based Green Curriculum-2021(COGC-2021)

Semester -V

Course Title: Electronics and Communication Engineering Project-I

(Course Code: 4351107)

Diploma programme in which this course is offered	Semester in which offered
Electronics & Communication Engineering	5th Semester

1. RATIONALE

Project work provides 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. So, students get ecosystem to provide innovative solution with partial implementation, which is economically and technologically viable.

2. COMPETENCY

Students will be able to define the problem statement and implement solution under the mentoring of the institute/Industry guide. It may develop following competencies…

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

3. COURSE OUTCOMES (COs)

At the end of the course, student will able to

1. Survey the related literature for industrial and societal problem
2. Define the problem and the objectives of the project.
3. Adopt optimum solution from possible alternative designs
4. Simulate and Implement sub system
5. Present organized project report

4. TEACHING AND EXAMINATION SCHEME

Teaching Scheme (In Hours)			Total Credits (L+T+P/2)	Examination Scheme				
				Theory Marks		Practical Marks		Total Marks
L	T	P	C	CA	ESE	CA	ESE	
0	0	2	1			50	50	100

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

5. SUGGESTED PRACTICAL EXERCISES

6. MAJOR EQUIPMENTS/ INSTRUMENTS REQUIRED

These major equipments with broad specifications for the PrOs is a guide to procure them by the administrators to user in uniformity in all institutions across the state.

Sr. No.	Equipment Name with Broad Specifications	PrO. No.
1	DSO (100 MHz)	
2	Arbitrary Function Generator	
3	Spectrum Analyzer	
4	Universal Programmer	
5	PCB kit	
6	Soldering Station	
7	IC tester	
8	LCR-Q meter	
9	High End Digital Multimeter	
10	Power Supply	
11	Field Strength Meter	
12	Embedded system Development Boards	

7. AFFECTIVE DOMAIN OUTCOMES

The following ***sample*** Affective Domain Outcomes (ADOs) are embedded in many of the above-mentioned COs and PrOs. More could be added to fulfill the development of this course competency.

a) Work as a leader/a team member.
b) Follow ethical practices.
c) Follow safety precautions.
d) **Realize importance of E-waste management.**

The ADOs are best developed through the laboratory/field based exercises. Moreover, the level of achievement of the ADOs according to Krathwohl's 'Affective Domain Taxonomy' should gradually increase as planned below:

i. 'Valuing Level' in 1st year,
ii. 'Organization Level' in 2nd year,
iii. 'Characterization Level' in 3rd year.

8. UNDERPINNING THEORY

9. SUGGESTED SPECIFICATION TABLE FOR QUESTION PAPER DESIGN

10. SUGGESTED STUDENT ACTIVITIES

Activity	Contact hours	Marks Distribution
1. Shodhyatra	04	15
2. Problem Definition & Submission	04	20
3. Design Solution	10	30
4. Hardware/software simulation and partial Implementation	06	20
5. Documentation & Presentation	04	15
Total	28	100

Other than the classroom and laboratory learning, following are the suggested student-related co-curricular activities which can be undertaken to accelerate the attainment of the various outcomes in this course: Students should perform following activities in group and prepare reports of about 5 pages for each activity. They should also collect/record physical evidences for their (student's) portfolio which may be useful for their placement interviews:

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.

11. SUGGESTED SPECIAL INSTRUCTIONAL STRATEGIES (if any)

These are sample strategies, which the teacher can use to accelerate the attainment of the various outcomes in this course:

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.

12. SUGGESTED MICRO-PROJECTS

13. SUGGESTED LEARNING RESOURCES

List of Magazines.
Electronics for you.

Electronic design news.
Elector electronics.
Electronics project manuals

14. SOFTWARE/LEARNING WEBSITES

http://www.electronicsproject.org
http://www.circuiteasy.com
http://www.electronics-project-design.com
http://www.electronicsschematic.com

15. PO-COMPETENCY-CO MAPPING

Semester IV	Electronics and Communication Engineering Project-I (Course Code: 4351107)						
	POs						
Competency & Course Outcomes	**PO 1 Basic & Discipline specific knowledge**	**PO 2 Problem Analysis**	**PO 3 Design/ development of solutions**	**PO 4 Engineering Tools, Experimentation & Testing**	**PO 5 Engineering practices for society, sustainability & environment**	**PO 6 Project Management**	**PO 7 Life-long learning**
Competency	define the problem statement and implement solution						
CO1: Survey the related literature for industrial and societal problem	3	1	1	1	2	1	3
CO2: Define the problem and the objectives of the project.	3	2	1	1	2	1	3
CO3: Adopt optimum solution from possible alternative designs	3	3	1	1	2	2	3
CO4: Simulate and Implement sub system	3	3	3	3	1	1	3
CO5: Present organized project report	3	1	1	2	2	2	3

*Legend: '**3**' for high, '**2**' for medium, '**1**' for low and '**-**' for no correlation of each CO with PO.*

16. COURSE CURRICULUM DEVELOPMENT COMMITTEE

GTU Resource Persons

Sr. No.	Name and Designation	Institute	Contact No.	Email
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