


**Government of Karnataka**  
**Department of Technical Education**  
**Board of Technical Examinations, Bangalore**

	<b>Course Title: PROJECT WORK (Electrical and Electronics)</b>		
	Scheme (L:T:P) : <b>0:2:4</b>	Total Contact Hours: <b>78</b>	Course Code: <b>15EE66P</b>
	Type of Course: <b>Practice</b>	Credit : <b>03</b>	Core: <b>Practice</b>
CIE- 25 Marks		SEE- 50Marks	

**Prerequisites:** Application learned concepts form the previous semester studied courses.

**Course Objectives:**

1. Learn the objective of this project is to provide opportunity for the students to implement their skills acquired in the previous semesters to practical problems/problems faced by industry/development of new facilities
2. Make the students come up with innovative/ new ideas in his area of interest.
3. Identify, analyze and develop opportunities as well as to solve broadly defined Electrical and Electronics Engineering problems
4. Enhance students' appreciation of the values of social responsibility, legal and ethical principles, through the analysis and discussion of relevant articles and real time projects

**Course outcome**

*On successful completion of the course, the students will be able to:*

Course Outcome		CL	Linked PO	Allotted hours
CO1	Understand and analyse the project.	R/U	2 to 10	<b>6hrs/Week</b>
CO2	Apply the knowledge of latest trends in design/simulation and fabrication of the project	U/A/C	2 to 10	
CO3	Relate the ideas while executing the project.	U/A/C	2 to 10	
CO4	Conduct test to examine the performance of the project.	E	2 to 10	
CO5	Prepare project report and power point presentation for seminar in team to enhance his writing skills and oral communication.	A/C/E	2 to 10	
CO6	Develop individual confidence to handle various electrical and electronics engineering project and expose themselves to acquire life skills solve practical problems	A/C	2 to 10	
		TOTAL		<b>78 Hours</b>

## MAPPING COURSE OUTCOMES WITH PROGRAM OUTCOMES

### Course-PO Attainment Matrix

Course	Programme Outcome									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
	Basic knowledge	Discipline knowledge	Experiments a practice	Engineering Tools	Engineer and society	Environment & Sustainability	Ethics	Individual and Team work	Communicati on	Life long learning
<b>PROJECT WORK</b>		3	3	3	3	3	3	3	3	3
<p><i>Level 3- Highly Addressed, Level 2-Moderately Addressed, Level 1-Low Addressed.</i>            Method is to relate the level of PO with the number of hours devoted to the COs which address the given PO.            If <math>\geq 40\%</math> of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 3            If 25 to 40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 2            If 5 to 25% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 1            If <math>&lt; 5\%</math> of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed.</p>										

### Composition of Educational Components:

Questions for CIE and SEE will be designed to evaluate the various educational components (Bloom's taxonomy) such as:

Sl. No.	Educational Component	Weightage (%)
1	Remembering	10
2	Understanding	15
3	Application/ Analysis	25
4	Create	30
5	Evaluate	20
<b>Total</b>		<b>100</b>

**A. INTRODUCTION**

The objective of the project work is to enable the students in convenient groups of maximum of 5 members on a project involving theoretical and experimental studies related to the branch of study. Every project work shall have a guide who is the member of the faculty of the institution. Six periods per week shall be allotted in the time table and this time shall be utilized by the students to receive the directions from the guide, on library reading, laboratory work, computer analysis or field work as assigned by the guide and also to present in periodical seminars on the progress made in the project.

**B. TIME FRAME FOR THE PROJECT**

1. Carry out a session or a seminar from the ISTE Student Chapter coordinator / Programme coordinator with the help of Innovation club / I II cell for directing the students to identify project areas in the field of their interested including interdisciplinary areas.
2. Power point presentation in seminar should include detail description of project areas related to program,, Project report formats, developing personnel writing skills.
3. The Students/Departments may at liberty to form the batch not less than 5 and maximum 8 at the end of V semester.
4. Students should take the approval from the Project committee/ Head of department for doing project.
5. After approval the batch of students will be published in department notice board along with guide in the end of 5<sup>th</sup> semester.
6. All students should finalize their Project immediately before commencement of SEE of 5<sup>th</sup> semester.
7. The types of project may include:
  - Industrial case study
  - Preparation of a feasibility report
  - Design and development of equipment.
  - The overhauling of existing equipment
  - Creation of New facilities
8. The project should be challenging but manageable within the resources and time available.
9. Students should undergo reviews for three times in 6<sup>th</sup> semester during the internal assessment. Time table for IA should include project review. The guide should monitor the progress of Project work periodically and it should be finally evaluated for 25 marks at the end of 6<sup>th</sup> semester.
10. The IA marks will be evaluated based on oral presentation and assessment by the internal guide by adopting Rubrics being developed by Project committee.
11. Real time problems, Industry related problems, should be chosen and it is a Responsibilities of the project committee / Programme coordinator/ Innovation club / I.I.T. cell to choose the appropriate project and to accept the Project Proposal
12. **Identification of Topic:** The selection of topic is of crucial importance. It should be field of interest. It is advisable to choose the project can be completed on time and within the budget and resources. The topic should be clear, directional, focussed and feasible.
13. An outline of project proposal submitted & synopsis from student will initiate a dialogue between Student and Project coordinator who will then help you to work on the chosen topic and report.

### **C. Field identified for Project work**

Each student may be assigned any one of the following types of project work:

**According to the local needs, the following major projects are suggested:**

The following areas may be chosen while selecting a project work:-

1. PLC based
2. Microcontroller based
3. Application software based
4. Load survey study in order to select suitable meter /motor/ capacitor/energy conservation /to improve the overall system in following places:-
  - a. Institution
  - b. Hostel
  - c. Apartment
  - d. Industry
  - e. KEB/BSNL
  - f. Substation
  - g. Any feeder line
- 7 Power electronics based
- 8 Electric drive based
- 9 Energy Conservation related project
- 10 Modernization of existing laboratory
- 11 Automation based
- 12 Non Conventional generation of electric energy
- 13 Electric Motor Control
- 14 Switchgear and Protection based
- 15 Any other innovative ideas in the field of electrical and electronics field.

## E. Course Assessment and Evaluation Scheme for Project work

	What		To whom	When/Where (Frequency in the course)	Max Marks	Evidence collected	Course outcomes
<b>Direct Assessment met</b>	CIE	IA	Students	CIE (At the end of semester)	25	1. Project Synopsis. 2. Log sheet 3. Project report 4. project model	CO1, CO2, CO3,CO4,CO5, CO6
	SEE	End Exam		SEE End of the course	50	CO1, CO2, CO3,CO4,CO5,CO6 Project report / project model / Study report	
<b>Indirect Assessment</b>	Student Feedback on course		Students	Middle of the course	Feedback forms	CO1 Delivery of course	
	End of Course Survey			End of the course	Questionnaires	CO1 to CO6 Effectiveness of Delivery of instructions & Assessment Methods	

\***CIE** – Continuous Internal Evaluation

\***SEE** – Semester End Examination

## E. Guidelines for the preparation of project report

1. Project reports should be typed neatly in Times New Roman letters with font size 14 for titles and 12 for text on both sides of the paper with 1.5 line spacing on a A4 size paper (210 x 297 mm). The margins should be: Left - 1.5", Right - 1", Top and Bottom - 0.75".
2. The total number of reports (**Soft bound**) to be prepared are
  - One copy to the department /library
  - One copy to the concerned guide(s)
  - One copy to the candidate.
3. Before taking the final printout, the approval of the concerned guide(s) is mandatory and suggested corrections, if any, must be incorporated.
4. Every copy of the report must contain
  - Inner title page (White)
  - Outer title page with a plastic cover
  - Candidate declaration and Certificate in the format enclosed both from the institution and the organization where the project is carried out.
  - An abstract (synopsis) not exceeding 100 words, indicating salient features of the work.
5. The organization of the report should be as follows

<ol style="list-style-type: none"><li>1. Inner title page</li><li>2. Abstract or Synopsis</li><li>3. Acknowledgments</li><li>4. Table of Contents</li><li>5. List of table &amp; figures (optional)</li></ol>	Usually numbered in roman
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Chapters(to be numbered in Arabic) containing Introduction-, which usually specifies the scope of work and its importance and relation to previous work and the present developments, Main body of the report divided appropriately into chapters, sections and subsections.

The chapters, sections and subsections may be numbered in the decimal form for e.g. Chapter 2, sections as 2.1, 2.2 etc., and subsections as 2.2.3, 2.5.1 etc.

The **chapter must be left or right justified (font size 16)**. Followed by the **title of chapter centered (font size 18)**, **section/subsection numbers along with their headings must be left justified** with **section number and its heading in font size 16** and **subsection and its heading in font size 14**. The **body or the text** of the report should have font size 12.

The figures and tables must be numbered chapter wise

The last chapter should contain the summary of the work carried, contributions if any, their utility along with the scope for further work.

**Reference or Bibliography:** The references should be **numbered serially** in the order of their occurrence in the text and their numbers should be indicated within square brackets for e.g. [3]. The section on references should list them in serial order in the following format.

1. For textbooks – Dr.Paramar S, Welding process and technology, Khanna publishers, NewDelhi, 2 Edition, 2003.
2. For papers – Y.Javadi and I.sattari, Welding distortion in pipes, Journal of pressure vessels and piping, Vol 85, Aug 2008, pp 337-343

**CIE Evaluation NOTE: Rubrics Model (for 20 Marks) should be prepared by the Course Coordinator to evaluate the student performance on various components during Project execution. The Rubrics Model marks should be included in the final project Report.**

**CIEASSESSMENT FOR FINAL REVIEW**

1. Log sheet	05 mark
2. Assessment (as per Rubrics)	20 mark
<b>TOTAL</b>	<b>25 mark</b>

**SEE ASSESSMENT:**

1. Project Report	10 mark
2. Writing Synopsis/ Diagrams/ working, etc	10 marks
3. Project Demonstration	20 marks
4. Viva Voce	10 marks
<b>TOTAL</b>	<b>50 Marks</b>

**MODEL OF RUBRICS FOR ASSESSING REVIEWS OF PROJECT FOR CIE**

Student name	Reg no	Dimension	Scale					Students Score					
			Unsatisfactory	Developing	satisfactor y	Good	Exemplary	1	2	3	4	5	
		<b>Collection of data</b>	Does not collect any information relating to the topic	Collects very limited information; some relate to the topic	Collect much information; but very limited relate to the topic	Collects some basic information; most refer to the topic	Collects a great deal of information; all refer to the topic						
		<b>Fulfill team's roles &amp; duties</b>	Does not perform any duties assigned to the team role	Performs very little duties but unreliable.	Performs very little duties	Performs nearly all duties	Performs all duties of assigned team roles						
		<b>Shares work equally</b>	Always relies on others to do the work	Rarely does the assigned work; often needs reminding	Usually does the assigned work; rarely needs reminding	Normally does the assigned work	Always does the assigned work without having to be reminded.						
		<b>Listen to other Team mates</b>	Is always talking; never allows anyone else to speak	Usually does most of the talking; rarely allows others to speak	Talks good; but never show interest in listening others	Listens, but sometimes talk too much	Listens and speaks a fair amount						
<b>Grand Average/Total</b>													



**APPENDIX 1 (Cover page)**

(A typical Specimen of Cover Page )<Font Style Times New Roman – Bold>

**TITLE OF PROJECT REPORT**

<Font Size 18><1.5 line spacing>

**A PROJECT REPORT**

<Font Size 14>

*Submitted by*

<Font Size 14><Italic>

**NAME OF THE CANDIDATE(S)**

<Font Size 16>

*in partial fulfilment for the award of the diploma*

*of*

<Font Size 14><1.5 line spacing><Italic>

**DIPLOMA IN ELECTRICAL & ELECTRONICS  
ENGINEERING PROGRAMME**

<Font Size 16>

**IN**

DEPARTMENT OF E and E ENGINEERING

<Font Size 14>

LOGO



**NAME OF THE COLLEGE**

<Font Size 14>

**DEPARTMENT OF TECHNICAL EDUCATION**

**BENGALURU-560001**

<Font Size 16><1.5 line spacing>

Year of submission: ( MONTH & YEAR)

<Font Size 14>

**APPENDIX 2 (Title page)**

(A typical Specimen of Title Page) <Font Style Times New Roman – Bold>A Project Report  
on

**<TITLE OF THE PROJECT WORK>**

Submitted for partial fulfilment of the requirements for the award of the  
of

**DIPLOMA IN ELECTRICAL & ELECTRONICS ENGINEERING**

**BY**

**BATCH**

**<Mr. / Ms. Name of the Student (Roll No.)>**

**<Mr. / Ms. Name of the Student (Roll No.)>**

**<Mr. / Ms. Name of the Student (Roll No.)>**

**<Mr. / Ms. Name of the Student (Roll No.)>**

**<Mr. / Ms. Name of the Student (Roll No.)>**

Under the guidance of

**<Name of the Staff>**

Lecturer

Department of E&E

Place-----



**Department of E&E Engineering**

**<<NAME OF INSTITUTE>>**

**<<ADDRESS OF INSTITUTE>>**

**APPENDIX 3 (Certificate)**

(A typical specimen of Bonafide Certificate)  
<Font Style Times New Roman>

**DEPARTMENT OF TECHNICAL EDUCATION  
BENGALURU-560001**

<Font Style Times New Roman – size -18>

**BONAFIDE CERTIFICATE**

<Font Style Times New Roman – size -16>

<Font Style Times New Roman – size -14>

Certified that this project report “.....TITLE OF THE PROJECT.....”is the bonafide work of “.....NAME OF THE CANDIDATE(S).....”who carried out the project work under my supervision.

<<Signature of the Head of the Department>><<Signature of the Project coordinator>>

**SIGNATURE**

<<Name>>

**HEAD OF THE DEPARTMENT**

**SIGNATURE**

<<Name>>

**PROJECT CORDINATOR**

<<Academic Designation>>

<<Department>>Department of E &E Engineering

<<Full address of the Dept& College >><<Full address of the Dept& College >>

Examiners 1.....<<Signature, Name, Designation& Address>>.....

Examiners 2.....<<Signature, Name, Designation& Address>>.....

## APPENDIX 4 (Candidate declaration)

### CANDIDATE'S DECLARATION

I, ----- a student of Diploma in ----- Department bearing Reg No-----of ----- hereby declare that I own full responsibility for the information, results and conclusions provided in this project work titled “-----” submitted to **Board of Technical Examinations, Government of Karnataka** for the award of Diploma in -----.

To the best of my knowledge, this project work has not been submitted in part or full elsewhere in any other institution/organization for the award of any certificate/diploma/degree. I have completely taken care in acknowledging the contribution of others in this academic work. I further declare that in case of any violation of intellectual property rights and particulars declared, found at any stage, I, as the candidate will be solely responsible for the same.

**Date:**

**Place:**  
candidate

**Signature of**

**Name:** -----

**Reg No:**-----

**APPENDIX 5 (Certificate issued by guide)**

**DEPARTMENT OF TECHNICAL EDUCATION**

**NAME OF THE INSTITUTION**

Address with pin code

Department of .....

**CERTIFICATE**

Certified that this project report entitled -----  
-----”which is being  
submitted by Mr./Ms. ...., Reg. No....., a  
bonafide student of .....in partial fulfilment for the award of  
**Diploma in -----Engineering** during the year ..... is record of  
students own work carried out under my/our guidance. It is certified that all  
corrections/suggestions indicated for internal Assessment have been incorporated in the  
Report and one copy of it being deposited in the polytechnic library.

The project report has been approved as it satisfies the academic requirements in respect of  
Project work prescribed for the said diploma.

It is further understood that by this certificate the undersigned do not endorse or approve any  
statement made, opinion expressed or conclusion drawn there in but approve the project only  
for the purpose for which it is submitted.

Guide(s)

Name and signature

Examiner 1

2

**Head of Department**

Dept. of -----

## APPENDIX 6

### Format of Synopsis

1. Title of the Project
2. Objectives of the study
3. Rationale for the study
4. Statement of the Problem
5. Detailed Methodology to be used for carrying out the study
6. The expected contribution from the study (to perform any laboratory experiments)
7. List of activities to be carried out to complete the project (with the help of a bar chart showing the time schedule)
8. Places/labs/equipment and tools required and planning of arrangements
9. Problems envisaged in carrying out the project, if any.
10. Brief description of project in 100 words

## APPENDIX-7 FORMAT OF LOG SHEET

Sl.No.	Date	Project activity	Initials of Guide

Understand and analyse the project.
Apply the knowledge of latest trends in design/simulation and fabrication of the project
Relate the ideas while executing the project.
Conduct test to examine the performance of the project.
Prepare project report and power point presentation for seminar in team to enhance his writing skills and oral communication.
Develop individual confidence to handle various electrical and electronics engineering project and expose themselves to acquire life skills solve practical problems

**MODEL (PROJECT TIME LINE)- APPENDIX-8**

SL.No	TASK	Responsibility	END OF V SEMESTER				VI SEMESTER													
			12	13	14	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	WEEK	Project Com/HOD																		
1	Seminar regarding Project work	Project Com/HOD																		
2	Batch formation & Guide allocation	HOD																		
3	Identification of project	Students/Guide																		
4	Project synopsis Submission	Students																		
5	Finalisation of Project	Students/Guide																		
6	Literature survey	Students/Guide																		
7	Identification of facility to do PW	Guide																		
8	Using the knowledge of latest trends in design/simulation and fabrication of the project	Students/Guide																		
9	Conduct test to examine the performance of the project .Results discussion	Students																		
10	Review of Project report by guide	Students																		
11	Project report submission & Seminar using power point presentation	Students/Guide																		