


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

	Course Title: PROJECT WORK-I		
	Scheme (L:T:P) : 0:0:3	Total Contact Hours: 39	Course Code: 15AT58P
	Type of Course: Practice	Credit :- -	Core/ Elective: Practice
CIE- 25 Marks		SEE- No. End Exam	

Prerequisites: knowledge of applying the concepts learnt in the previous semesters.

Course Objectives:

1. Provide opportunity for the students to implement their skills acquired in the previous semesters to practical problems/problems faced by industry/Workshop/Authorised service station/STU/development of new facilities
2. Make the students come up with innovative/ new ideas in his area of interest.
3. Identify, analyse and develop skill to solve broadly defined Automobile 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	Construct an idea and develop confidence in designing, analysing and executing the project.	Application/Analysis/creation	1 to 10	3hrs/Week
CO2	Apply the knowledge of latest trends in automobile components/ system and Relate their ideas while executing the project.	Application/Analysis/creation	1 to 10	
CO3	complete understanding of Executing the project	Application/Analysis/creation	1 to 10	
CO4	Prepare documents in team and enhance written and oral communication presentations.	Application/Analysis/creation	1 to 10	
CO5	Develop individual confidence to handle various engineering assignments and expose	Application/Analysis/creation	1 to 10	

	themselves to acquire life skills to meet societal challenges		
		TOTAL	39 Hours

MAPPING COURSE OUTCOMES WITH PROGRAM OUTCOMES

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	Communication	Life long learning
PROJECT WORK	3	3	3	3	3	3	3	3	3	3
<p>Level 3- Highly Addressed, Level 2-Moderately Addressed, Level 1-Low Addressed. Method is to relate the level of PO with the number of hours devoted to the COs which address the given PO. If $\geq 40\%$ 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 $< 5\%$ of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed.</p>										

1. PROJECT WORK:

39 HRS

A. INTRODUCTION

The objective of the project work is to enable the students in convenient groups of minimum of 3 & maximum of 8 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. Three hours 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. ROAD MAP FOR THE PROJECT

1. Carry out a session or a seminar from the ISTE/IEI Student Chapter coordinator / Programme coordinator with the help of Innovation club / I I I 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 3 and maximum 8 and get registered with project coordinator/HOD through Project Proposal Performa (Appendix 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 5th semester.

6. All students should finalize their Project immediately before commencement of SEE of 5th 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 6th 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 6th 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. Industrial visit

Students are required to undergo an Industrial visit locally or anywhere in India depending upon their convenience, in V semester only. Students can visit any industry as per the requirement to achieve the program outcomes. The permission letter from the industries is not mandatory (due to the industries busy schedule and time concern). Students will visit the available industries at the time of their visit to that place. After completion of their visit the reports should be prepared. Each Student should write the report independently in view of his own observation in industry. All days for the visit should be accounted for clearly giving attendance particulars. The concern accompanying staff is to check student presence and access progress periodically

D. Industrial report

Students are required to submit a comprehensive report on factory visit with details of the organization where the training was undergone. The comprehensive report should focus on study of plant/ product /process/ along with intensive in-depth study on anyone of the topics such as processes, methods, tooling, plant layout and equipment, highlighting aspects of quality, productivity of the system. Any data, drawings etc should be incorporated with the consent of the Organization. The comprehensive report should be submitted for the end exam for evaluation

E. Thrust areas identified for Project work

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

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

1. Non-conventional energy
 - a) Solar bicycle
 - b) Solar scooter/motorcycle
 - c) Solar power battery charger
 - d) Wind power battery charger
 - e) Solar car
2. Applications of electrical in Automobiles
 - a) Motorized vehicle lifting jack
 - b) Electrical vehicles
 - c) Electro-magnetic brakes
 - d) Electric mirrors
 - e) Electromagnetic clutch
 - f) Power windows (motorised)
 - g) Battery charger
3. Applications of electronics in Automobiles
 1. Automatic wiper
 2. Tilting head lights
 3. Automatic Dipper
 4. Low tyre pressure Indicator
 5. Digital speedometer
 6. Digital fuel gauge
 7. Rear view camera
 8. Test setups of different sensors and actuators.
 9. Demonstration models of different automotive electronic control systems.
4. General Automobile field
 - a) Regenerative braking system
 - b) Steering controlled headlight
 - c) Seat belt automatic locking system
 - d) Hydraulic braking
 - e) Electromagnetic shock absorber
 - f) Digital auto speed limiter
5. Design and Fabrication of various types of lab equipment's useful to the juniors.
7. Repair and overhauling of various Automobile components/system and lab equipment's
Available at polytechnic
8. Reconditioning of petrol/Diesel engine
09. Reconditioning of Hydraulic braking system.
10. Reconditioning of Air braking system
11. Reconditioning of Independent suspension system
12. Reconditioning of Gear box (any one)
13. Reconditioning of Steering. Systems
14. Painting of a vehicle

15. Implementation of 5S concept.
16. Construction of Battery.
17. Reconditioning of Starter motor/Alternator
18. Replacement/preparation of auto-electrical wiring
19. Tyre Retreading
20. Collection and analysis of data related automobile Engineering
21. Reconditioning of Two wheeler/Three wheeler/Four wheeler
22. Any agricultural based project (Harvesting/Sugarcane cutter/etc)
23. Project on alternate fuels/hybrid Technology
24. Preparation of teaching aids related to automobile engg.
25. Any study project related to Automobile and allied areas in field
26. Any project related to industry/workshop based problems
27. Any projects related to low cost automation
28. Projects related to multi-disciplinary.

(Above list is a just an example. you can choose the project apart from the list)

F. Course Assessment and Evaluation Scheme for Project work

	What		To whom	When/Where (Frequency in the course)	Max Marks	Evidence collected	Course outcomes
Direct Assessment met	CIE	IA	Students	At the end of semester)	25	1. Project Synopsis. 2. Plan & Schedule 3. Industrial visit report	1,2,3,4,5
	SEE	No End Exam		End of the course			
Indirect Assessment	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 CO5 Effectiveness of Delivery of instructions & Assessment Methods	

CIE ASSESSMENT FOR FINAL REVIEW-5th semester

- | | |
|------------------------------|---------|
| 1. Project identification | 05 mark |
| 2. Project synopsis | 10 mark |
| 3. Industrial visit & Report | 10 mark |

25 Marks

SEE ASSESSMENT:Note: **No. End Examination in V Semester****MODEL OF RUBRICS FOR ASSESSING REVIEWS OF PROJECT FOR CIE****RUBRICS MODEL**

Student Name:		Reg NO:				
RUBRICS FOR ACTIVITY(5 Marks)						
Dimension	Unsatisfactory	Developing	Satisfactory	Good	Exemplary	Student Score
	1 Mark	2 Mark	3 Mark	4 Mark	5 Mark	
Collection of data	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	Ex: 4
Fulfill team's roles & duties	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	5
Shares work equally	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.	3
Listen to other Team mates	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	2
Average / Total marks=(4+5+3+2)/4=14/4=3.5=4						

Note: This is only an example for one student. Appropriate rubrics/criteria may be devised by the concerned faculty (Course Coordinator) for assessing the given activity.

APPENDIX-7 (PROJECT-TIME LINE)

SL No	TASK	Responsibility	V SEMESTER				VI SEMESTER								
			Week	2	3	4-6	7-14	1	2	3	4-11	12	13	14	
1	Seminar regarding Project work	Project Guide /Prog. Coordinator													
2	Batch formation & Guide allocation	Prog. Coordinator													
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 Project Work	Guide													
8	Study/Fabrication/design of model	Students/ Guide													
9	Results discussion/performance testing	Students													
10	Review of Project work by guide	Students													
11	Project report submission	Students /Guide													