IV Year II Semester	**L**	**T**	**P**	**C**
Code: 17EC871	**0**	**0**	**1**	**1**

PROJECT WORK

Department HOD will form a department project Evaluation committee and nominate project coordinators. Project coordinators and project evaluation committee members will educate the students on how to carry out their project works in different specialized areas. Project coordinators will send a notice to the students to identify their interested area of research. Some of the research areas are:

- Antenna Design
- Signal Processing (Speech, Image, Biomedical and Video Processing)
- Communication Engineering (WirelessCommunication, ModulationandCodingTechniquesandCommunication and Microwave Systems)
- VLSI Design
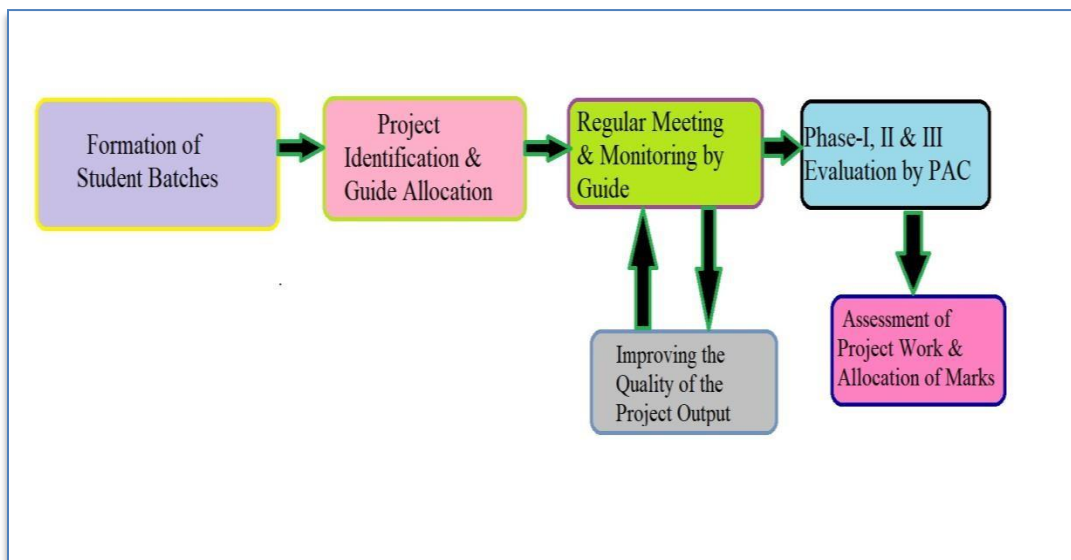- Embedded Systems.
- Social and Environmental Related.

Fig.1ProjectEvaluationProcess

Students are encouraged to select topics which will be useful to the society and advised to complete the project work in time. The flowchart of project evaluation is shown in Fig. 1.

A. Topic Identification:

1. The students are required to identify the area with consulting their respective guides. Further, they have to do a thorough literature survey on their area of interest, identify the problem statement and submit the abstract on the intended project.

2. The students are also encouraged to consult experts from reputed Research labs/Industries to carry out their project work through proper channel.

B. Types and relevance of the projects and their contribution towards attainment of PO's.

- Current Academic projects are mapped to Pos and PSOs.
- Each project is evaluated by Internal Examiners and External Examiners. Marks are awarded according to the quality of the project and their contribution towards attainment of PO's.

C. Process for monitoring and evaluation.
Monitoring:

1. Students have to submit the synopsis of their respective project work to the department project coordinators for scrutiny.

2. The project coordinators will scrutinize the synopsis and give suggestions towards the improvements of the synopsis.

3. The group of students taking projects from Public/Private sectors needs to take approval by HOD and Letter of Reference sent to the concerned sector. A teacher of the department will be allocated as Internal Guide to such students. Where as the scientist/research era the concerned sector will act as External Guide.

4. The students should meet their concern guide according to the time table and update their project work progress and have to take signature from guide in their project dairy. The student batches must give presentation on the project in front of the project work review committee as scheduledinPhase-1, Phase-2and Phase-3 as shown inTable2.a.

5. Project Review notice will be send to students 10 days prior. The Internal supervisor and review committee evaluates the projects for respective domains.

Project Work Review Schedule:

Table 2.a: Project Work Review Schedule

Project group formation	Beginning of the VIII Semester (November 2ndWeek)
Guide Allocation	VIII Semester(November 3rdWeek)
Identification of Research Areas	VIII Semester(November 4thWeek)
Project Phase–I Review	VIII Semester(December 4thWeek)
Project Phase –II Review	VIII Semester(January4th Week)
Project Phase –III Review	VIII Semester(February4thWeek)
Submission of Draft Copy	VIII Semester(March3rd Week)
Submission of Final Report	VIII Semester(May)
Final presentation, Demonstration and Viva voce	VIII Semester(May)

Project Work Evaluation:

The Internal marks will be awarded by project supervisor and department all project review committee. The end semester examination (Viva - Voce) shall be conducted by the External Examiner appointed by the university. The Internal evaluation will be done in three phases. The External Evaluation of Project work will be done at the end of the IV year. Out of total 200marksfor the project work, 60marksare allocated for Project Internal Evaluation and 140marks for the end semester Examination. Marks distribution for Internal & External Assessment is given in table 2.b

Table.2.b:Marks Distribution for Internal &External Assessment

Marks Distribution for Internal & External Assessment				
Internal	Number of competencies to be measured	Guide(Max marks)	Internal Review committee : (Max marks)	Total
Review 1	5	5	10	15
Review 2	5	5	10	15
Review 3	10	10	20	30
Total		**20**	**40**	**60**
Total Internal marks				**60**
External Marks				**140**
Total Marks (Internal+External)				**200**

Rubrics for Project Internal Evaluation:

TheRubricsforProjectEvaluationisshowninTable2.c

Rubric1 (R1)Phase-1Evaluation

Table.2.c:Rubrics for Project Evaluation.

ECE:PROJECTREVIEW-1						
SNo	POs	Advanced(5Marks)	Proficient(4Marks)	Basic(3Marks)	Minimal(2Marks)	Deficient(1Marks)
1	**1. Engineering knowledge**	Demonstrates forward-thinking applications of Mathematics, Sciences, basic engineering to the problem	Demonstrates adept knowledge in application of Mathematics, Sciences, basic engineering to the problem	Demonstrates ability in base-forming application of Mathematics, Sciences, basic engineering to the problem	Demonstrates minimum ability in application of Mathematics, Sciences, basic engineering to the problem	Demonstrates insufficient ability in application of Mathematics, Sciences, basic engineering to the problem
2	**2. Problem analysis**	Crystallizes problem statement and well-defined in objectives	Clear-cut in problem statement and delimitates objectives	Problem statement is clear but objectives are not clearly defined	Problem statement is clear but objectives are vague	Problem statement and objectives are not comprehensive or determined.
3	**5. Modern tool usage**	Able to experiment add on tools with standard knowledge.	Able to use modern tools with standard knowledge	Able to use modern tools without standard knowledge.	Having moderate knowledge in usage of modern tools but no standard knowledge	Unable to use modern tools and no standard knowledge.
4	**10. Communication**	Able to read, understand and interpret technical and non-technical information Effectively.	Able to read, understand and interpret technical and non-technical information	Able to read, understand but unable to interpret technical and non-technical information	Able to read but unable to understand and interpret technical and non-technical information	Not able to identify technical and non-technical information

5	**12. Life-long learning**	Able to explore the subject using various online sources and references with curiosity	Able to explore subject thoroughly With curiosity	Able to explore subject thoroughly And occasionally	Able to explore subject and occasionally Search new resources for	Able to explore subject superficially but cannot search new resources for information.
			From available resources for information.	Search new resources for information	information	

Rubric2(R2)Phase-2Evaluation

ECE:PROJECTREVIEW-2						
S N o	**POs**	**Advanced(5Marks)**	**Proficient(4Marks)**	**Basic(3Marks)**	**Minimal(2Marks)**	**Deficient(1Marks)**
1	**3. Design/development of solutions**	Able to generate various engineering designs with justification.	Able to generate engineering design with justification	Able to generate engineering design but unable to justify.	Having minimum ability to identify tools for idea generation.	Able to use the idea generation tools but unable to generate engineering design.
2	**6. The engineer and society**	Able to identify, evaluate and solve the potential consequences on social, health and safety issues of The product /processes.	Able to identify and evaluate the potential consequences on social, health and safety issues of the product /processes.	Able to identify and having knowledge to evaluate the potential consequences of product and processes on society.	Able to identify impact of technology but unable to relate to consequences	Unable to identify and evaluate the potential consequences on social, health and safety issues of the product /process

3	**9.** **Individual and** **teamwork**	Having high level of effective communication, conflict resolution and composed behavior in the team.	Having good level of effective communication, conflict resolution ad composed behavior in the team	Having satisfactory level of effective communication, conflict resolution and composed behavior in the team	Having minimum level of effective communication, conflict resolution and composed behavior in the team	Deficient level of effective communication, conflict resolution, composed behavior among the team
4	**10.** **Communication**	Capable to Deliver high effective presentation with analytical listening to comprehend the information, instructions and the view points of others.	capable to deliver effective presentation, listen to comprehend the information, Instructions and view points of others	capable to deliver reasonably good presentation ,listen to comprehend the information, instructions and viewpoints of others	Satisfied presentation, without much attention to comprehend the information, instructions and viewpoints of others	Presentation is poor without any attention to comprehend the information, instructions and viewpoints of others.
5	**11. Project** **management** **and** **finance**	Able to show various cost optimization benefits /benefits of the projects skillfully.	Able to show various cost optimization benefits /benefits of the project.	Able to indicate the various economic costs / benefits of the project.	Able to indicate the various economic costs / benefits of the project but improvisation required.	Unable to indicate the various economic costs / benefits of the project.

Rubric3(R3)Phase-3Evaluation

S N o	POs	Advanced(5Marks)	Proficient(4Marks)	Basic(3Marks)	Minimal(2Marks)	Deficient(1Mark)
		ECE:PROJECTREVIEW -3				
1	**3. Design/development of solutions**	Able to apply and demonstrate optimal solution with justification	Able to use optimal solution with justification	Able to use optimal solution but unable to justify	Able to identify optimum one but not able to Use it.	Unable to identify decision making tools
2	**4. Conduct investigations of complex problems**	Analyze the and identify errors and trouble shoot to reach accurate conclusions.	Analyze the data critically and identify errors and limitations to reach appropriate conclusions.	Analyze the data critically and identify errors and limitations but unable to reach appropriate conclusions.	Analyze the data but unable to identify errors and limitations;henceunable to reach appropriate conclusions.	Able to understand but unable to analyze the data
3	**5. Modern tool usage**	Recognize and define the accuracy of errors sources in modeling, simulation (Modern tools used) and to get accurate results.	Recognize and define the accuracy of errors' sources i n modeling ,simulation(Modern tools used) and to validate the results.	Recognize and define the accuracy of errors'source s in modeling and simulation but could not validate the results.	Recognize but unable to measure /define the accuracy levels and sources of errors in modeling and simulation but could not validate the results.	Unable to recognize the errors and sources of errors.
4	**6. The engineer and society**	Identify, apply and demonstrate relevant regulations and standards clearly related to the problem in hand.	Identify andapplyrele vantregulati onsandstand ardsclearlyre latedtothepr oblem in hand.	Identify and apply relevant regulations and standards related to the problem in hand with less clarity.	Having knowledge on relevant regulations and standards related to the problem in hand with lack of application.	Lack of knowledge on professional engineering regulations and standards.

5	**7. Environment and sustain ability**	Identify, explain and evaluate solutions with pros and cons for sustainable development in the present problem.	Identify, explain and evaluate solutions for sustain able developmen t in the present problem.	Identify, explain but unable to apply solution for sustain able development in the present problem.	Posses knowledge on identificatio n of environment al issues but unable to apply solution to sustain able development in the present problem.	Less knowledge in principles of sustain able design and developmen t.
6	**8. Ethics**	Showing excellent understanding of the code of behavior in academic matters and behaves accordingly with inclusivity.	Showing good understandin g of the code of behavior in academic matters and behaves accordingly With inclusivity.	Showing understandin g of the code of behavior in academic matters and behaves accordingly with inclusivity.	Showing understandin g of the code of behavior in academic matters without inclusivity in behavior.	Minimal understandin g of the code of behavior in academic matters without inclusivity in behavior.
7	**9. Individual and teamwork**	Excellent presentation with smooth integration of contributions from all individuals with very systematic outcomes of the successful project.	Good presentation with smooth integration of contributions from all individuals and very systematic outcomes of the Successful project.	Good presentation with smooth integration of contributions from all individuals but unable to give systematic outcomes of the successful	Moderate Presentation with smooth integration of contributions from all individuals but unable to give systematic outcomes of the successful	Presentation with out integration of contributions from all individuals but unable to give systematic outcomes of the successful project.

8	**10.** **Communication**	Highly effective presentation relating the ideas in seam-less multi model manner – visually, textually, and orally. Able to answer all queries from audience.	Effective presentation relating the ideas inseam-less multi model manner - visually, textually, and orally. Able to answer all queries from audience.	Effective presentation relating the ideas inseam-less multi model manner - visually, textually, and orally. Able to partially answer to queries from audience.	Satisfactory presentation relating the ideas in multi model manner – visually ,textually, and orally. Able to partially answer the queries from audience.	Presentation prepared, attempted but not effective.
9	**11.** **Project management and finance**	Analyze by considering all factors related to the financial implications of a project / process and select optimal solution.	Analyze by considering all factors related to the financial implications of a project /process and select feasible solution.	Analyze by considering only few factors related to the financial implications of a project /process and select optimal solution.	Analyze by considering only few factors related to the financial implications of a project /process but unable to select optimal solution.	Project completed but the financial implications of a project/ process not considered.
10	**12.** **Life-long learning**	Demonstrate a skillful ability to explore a subject /topic thoroughly and generate a variety of knowledge possibly specialized or obscured that demonstrating deep fascination and curiosity	Demonstrate an ability to explore a subject / topic thoroughly and generate a variety of knowledge possibly specialized or obscured that Demonstrating deep	Demonstrate ability to explore a subject / topic and generating a variety of knowledge that demonstrating deep Fascination and curiosity.	Demonstrate some ability to explore a subject / topic and generate a variety of knowledge that demonstrating mild fascination and growing curiosity.	Demonstrate minimal or unable to explore a subject / topic which demonstrates no fascination and curiosity.
			Fascinatio n and curiosity.			

Projects are broadly classified as
1. **In-house Projects**: In this category, the project work is carried out under the supervision of a faculty from the department.
2. **Industry Projects**: In this category, the project work is carried out in an External organization /in an industry with identified Internal and External guides.

D. Process to assess individual and team performance

- In order to improve the quality of the project work, project progress reviews are conducted once in a week by the internal guides.

- Project progress reviews are conducted in three phases by the team of their respective guide and project review committee.

- The project review presentation should be given by all the student members of the batch according to the division of project.

- Eachstudentintheprojectteamisassessedaccordingtotheskillsetssuchasunderstanding the concept, explaining the concept, way of implementation of innovative idée as, use of latest tools, and answering to questions raised by the examiners.

E. Quality of completed projects/working proto types

- Final project demo for the working prototype and the reports are evaluated by a team consist of HOD and professors.
- The projects are evaluated and are awarded internal assessment marks for maximum 60marksaccordingto the project contribution towards attainment of PO's and PSO's.

Best Project Awards Evaluation Procedure:
- Innovations recognize the need for lifelong learning,
- Contemporary issues, organization of the report,
- Listening to and answering questions,
- Publications and internal and external marks,
- Project exhibition results