AMC ENGINEERING COLLEGE

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Project Outcomes

The student should have the ability to:

CO1: Students will identify the problem through intense literature survey.
CO2: Design the algorithm based on the suitable methodology and observation.
CO3: Able to implement suitable engineering tool to carry out project work using programming techniques leading to a logical solution.
CO4: Able to infer the project based on testing methodologies & its Implementation.
CO5: Able to write technical report writing.

CO-PO-PSO Mapping

CO-PO-PSO
CO1->PO1,PO2
CO2->PO1,PO2,PO3
CO3->PO3,PO4
CO4->PO4,PO5,PO9,PO10,PO12
CO5-> PO9,PO10,PO12

CO No.	Statement	Bloom's Cognitive level	POs/PSOs
C478.1	**CO1:** Students will identify the problem through intense literature survey.	**Understanding**	PO1 ,PO2/PSO1
C478.2	**CO2:** The algorithms that are designed such as DLLI as well as algorithms to calculate the liquid level, are adequately required in order to process the data.	**Create**	PO1,PO2,PO3/PSO1,PSO2,
C478.3	**CO3:** Modern tools such as Arduino, HC-12, Floating Sensor and Decoupling Capacitor along with a Smartphone device are used in this project.	**Apply**	PO3,PO4/PSO1, PSO2, PSO3
C478.4	**CO4:** From testing and implementing the project, the learning process and the quality of the product improve in parallel.	**Apply**	PO4,PO5,PO9,PO10,PO12/ /PSO1,PSO2
C478.5	**CO5:** Able to write technical report.	**Apply & Justify**	PO9,PO10,PO12/ PSO1,PSO2, PSO3

PROGRAM OUTCOMES:

PO1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and

	modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	**Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM EDUCATIONAL OBJECTIVES (PEO)

PEO 1	Graduates possess advanced knowledge of Computer Science & Engineering and excel in leadership roles to serve the society.
PEO 2	Graduates of the program will apply Computer Engineering tools in core technologies for improving knowledge in the Interdisciplinary Research and Entrepreneurs.
PEO 3	Graduates adapt Value-Based Proficiency in solving Real Time problems.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO-1	**Professional Skills:** Ability of applying the Computing Concepts, Data Structure, Computer Hardware, Computer Networks and Suitable Algorithm.
PSO-2	**Software Skills:** Ability to build Software Engineering System with Development Life Cycle by using analytical knowledge in Computer Science & Engineering and applying modern methodologies.

PO-PSO Mapping

PO's	PSO1	PSO2
PO1	3	
PO2	3	2
PO3	3	
PO4	1	
PO5	3	
PO6	2	
PO7	3	
PO8	-	-
PO9	3	2
PO10	2	2
PO11	1	1
PO12		

CO-PO Mapping

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
C478.1	2	2	-	-	-	-	-	-	-	-	-	-	2	
C478.2	3	3	3										3	2
C478.3			3	3									2	3
C478.4				2	3				3	3		2	3	3
C478.5									3	3		2	2	2
Average	**2.5**	**2.5**	**3**	**2.5**	**3**				**3**	**3**		**2**	**2.4**	**2.5**

Strength of CO Mapping to PO/PSOs with Justification

CO->PO Mapping	Justification
C478 .1->PSO1(2)	The project requires the application of knowledge under math, science and basic engineering which is indeed applied sufficiently.
C478.1->PO1(2)	Formulae to calculate the liquid level, percentage, estimation of mileage etc., are some of the mathematical formulae used that are moderately required by our project.
C478.1->PO2(2)	The problems faced by the previous design are kept as a consequent aspect in designing the new device. In this the survey has moderately contributed towards the design of our project.
C478.2->PSO1(2)	Both hardware and software are used in solving complex problems based on the survey conducted hence it is moderately applied.
C478.2->PSO2(2)	Here the problem and solution have been taken from and solved by using the surveys that were done in prior so they are moderately required by the project.
C478.2->PO1(3)	The system design is analyzed accurately and the complex problem is solved by designing 2-3 algorithms thus the design and development plays a strong role in our project.
C478.2->PO2(3)	The problems faced by the previous design have been given a proper solution in our present design thus problem solving plays a strong role.
C478.2->PO3(3)	The problem with the previous device was a chemical reaction when it came in contact with the liquid. Our system will use sensors to avoid any chemical reaction thus making it a strong requirement.
C478.3->PSO1(2)	Lot of tools that are used is designed on the basis of the problems faced by the previous designs hence strongly required in our project.
C478.3->PSO2(3)	Basic principles of mathematics are extensively used in this project, may it be in the calculation of volume, percentage of data etc. it is strongly required.
C478.3->PO3(3)	Can be used to identify, formulate, and analyze complex problems reaching substantiated conclusions by the application hence strongly recommended.
C478.3->PO4(3)	Once the problem was identified, algorithms were developed in order to solve the same thus the complex problem analysis or identification is strongly recommended.

C478.4->PSO1(3)	The problem solving of our project is based on the complex problems found during the extensive survey done thus the problem solving is strongly required in the project**.**
C478.4->PSO2(3)	Problem analysis and solution is designed for the complex engineering problem used in public domain and hence the relation is strong.
C478.4->PO4(2)	Identification, formulation and analysis of complex problems reaching substantiated conclusions by the application hence moderately recommended.
C478.4->PO5(3)	Our project aims to solve the real world problem of extinction of fuel and other precious liquids, thus the real world implications are very high in this project.
C478.4->PO9(3)	Individual and team work can effectively be implemented on multidisciplinary applications hence strongly required in our project.
C478.4->PO10(3)	In problem solving, multiple thoughts come in to provide an apt solution, which is done through team work hence it is strongly required.
C478.4->PO12(2)	Identification, formulation of the problem and solution has definitely improved the learning curve thus having a moderate effect on our project.
C478.5->PSO1(2)	The life learning lesson that we get in solving the problems is carried out continuously, thus moderately required in our project.
C478.5->PSO2(2)	Usage of research-based knowledge and research methods including design of experiments with the application are conducted hence medium.
C478.5->PO9(3)	Individual and team work with respect to multidisciplinary applications can be exhibited, hence strongly required in our project.
C478.5->PO10(3)	Effective communication and presentation of report can be done, which in turn helps in future presentations thus strongly required in our project.
C478.5->PO12(2)	The previous problems have been identified and an apt solution for the same has been developed which has definitely improved the learning curve hence moderately required in our project.