

# DIE FAILURE ANALYSIS

## PROJECT REPORT

*Submitted by*

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*to*

**The APJ Abdul Kalam Technological University**

*in partial fulfillment of the requirements for the award of the Degree  
of*

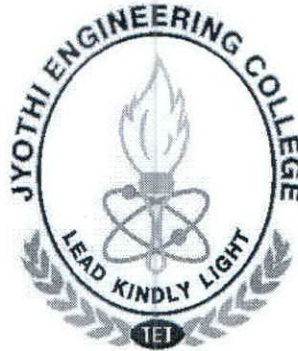
**BACHELOR OF TECHNOLOGY (B.TECH)**

*in*

**MECHANICAL ENGINEERING**

Under the guidance of

**Mr. PRAVEEN RAJ**



CREATING TECHNOLOGY  
LEADERS OF TOMORROW

MAY 2019

**Department of Mechanical Engineering**

**JYOTHI ENGINEERING COLLEGE, CHERUTHURUTHY**

THRISSUR 679 531

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**Dr. SUNNY JOSEPH KALAYATHANKAL**  
M.Tech, MCA, M.Sc, M.Phil, B.Ed  
Ph.D (Computer Science), Ph.D (Maths)  
PRINCIPAL  
Jyothi Engineering College  
Cheruthuruthy PO - 679 531

## COLLEGE VISION

Creating eminent and ethical leaders through quality professional education with emphasis on holistic excellence.

## COLLEGE MISSION

- To emerge as an institution par excellence of global standards by imparting quality engineering and other professional programmes with state-of- the-art facilities.
- To equip the students with appropriate skills for a meaningful career in the global scenario.
- To inculcate ethical values among students and ignite their passion for holistic excellence through social initiatives.
- To participate in the development of society through technology incubation, entrepreneurship and industry interaction.

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## DEPARTMENT VISION

To provide quality education of international standards in Mechanical Engineering and promote professionalism with ethical values, to work in a team and to face global challenges

## DEPARTMENT MISSION

- To provide an education that builds a solid foundation in Mechanical Engineering.
- To prepare graduates for employment, higher education and enable a lifelong growth in their profession.
- To develop good communication, leadership and entrepreneurship skills to enable good knowledge transfer.
- To inculcate world class research program in Mechanical Engineering.

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## PROGRAMME EDUCATIONAL OBJECTIVES (PEO's)

1. Graduate Engineers shall have strong practical and theoretical exposure in the field of Mechanical Engineering and will contribute to the society through innovation and enterprise.
2. Graduate Engineers shall have global outlook and technological leadership, good employments or opt for higher studies/research and have creative thinking to initiate and develop innovative ideas.
3. Graduate Engineers shall have excellent teamwork, communication and interpersonal skills, having high morals and ethical values.

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## PROGRAMME OUTCOMES (PO's)

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
  2. **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.
  3. **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.
  4. **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.
  5. **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.
  6. **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.
  7. **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.
  8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
  9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings
  10. **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.
  11. **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.
- Life-long learning:** Recognize the need for, and have the ability to engage in independent and life-long learning in the broadest context of technological change.

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## PROGRAMME SPECIFIC OBJECTIVES (PSO's)

1. Graduates would be able to apply their knowledge in the domains of manufacturing, fluid and thermal sciences to solve engineering problems.
2. Graduates would be able to apply the principles of design and analysis on product design with the help of modern CAD/CAM tools.
3. Graduates would be able to apply the basic principles of engineering and management practices in various practical fields to engage themselves in research/ Industry/Society.

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## Course Outcome

- C417.1 Students will have the ability to effectively gather and interpret information from literature survey and use this knowledge to identify, formulate, analyze and solve complex problems and to evaluate and interpret various solutions.
- C417.2 Students will gain the ability to communicate effectively with written, oral, and visual means in a technical setting.
- C417.3 Students will have the ability to use modern design and analysis tools to analyse and evaluate complex problems.
- C417.4 Students will be able to carry out calculations involved in design, consider and evaluate alternate assumptions, approaches, and procedures . Ability to fabricate system components related to engineering problems giving consideration to environment and society.
- C417.5 Students will have the ability to serve as effective team member to plan and complete the project/task within a specified budget and time.

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## PO - CO Mapping

Course Outcome							
Programme Outcomes	Sl.no	C417.1	C417.2	C417.3	C417.4	C417.5	Avg
	1	3	2	-	-	-	2.5
	2	3	-	2	2	-	2.33
	3	3	-	2	3	-	2.67
	4	3	-	2	3	-	2.67
	5	1	-	3	-	-	2
	6	-	-	-	3	-	3
	7	-	-	-	3	-	3
	8	-	2	-	-	-	2
	9	-	2	-	-	3	2.5
	10	-	3	2	-	-	2.5
	11	-	-	-	-	3	3
	12	3	-	1	-	-	2

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## PSO - CO Mapping

Course Outcome							
Programme Specific Outcomes	Sl.No.	C417.1	C417.2	C417.3	C417.4	C417.5	Avg
	1	3	2	2	3	2	2.4
	2	3	2	3	3	2	2.6
	3	3	2	2	3	2	2.4

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