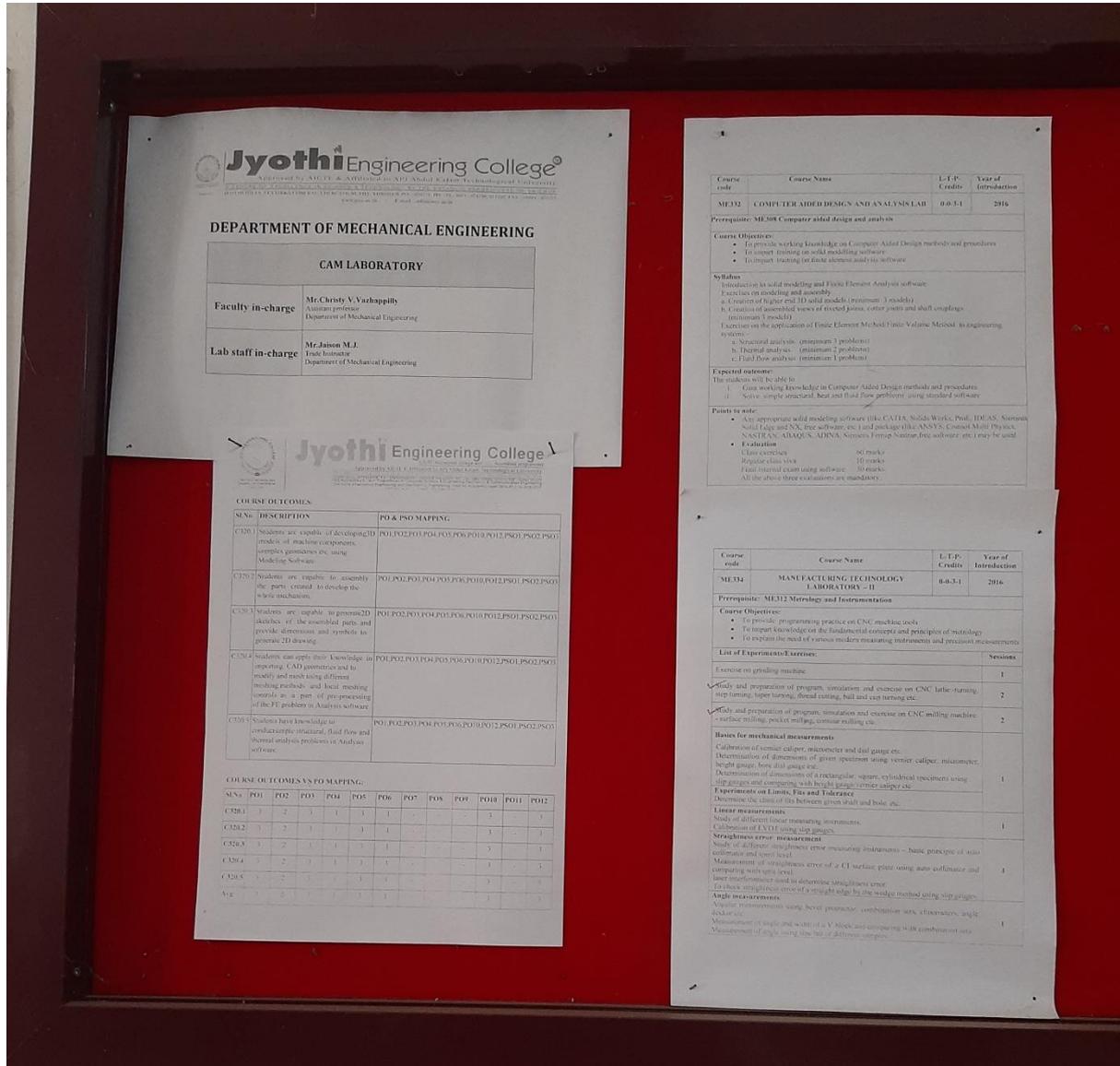




NBA accredited B.Tech Programmes in Computer Science & Engineering, Electronics & Communication Engineering, Electrical & Electronics Engineering and Mechanical Engineering valid for the academic years 2016-2022. NBA accredited B.Tech Programme in Civil Engineering valid for the academic years 2019-2022.

## Mechanical Engineering



**Jyothi Engineering College**  
 Approved by AICTE & Affiliated to APJ Abdul Kalam Technological University  
 A CENTRE OF EXCELLENCE IN SCIENCE & TECHNOLOGY BY THE CATHOLIC ARCHDIOCESE OF TRICHUR  
 JYOTHI HILLS, VETTIKATTIRI P.O., CHERUTHURUTHY, THRISSUR, PIN-679531 PH : +91- 4884-259000, 274423 FAX : 04884-274777

**DEPARTMENT OF MECHANICAL ENGINEERING**

**CAM LABORATORY**

**Faculty in-charge:** Mr. Christy V. Varapappillil  
 Assistant professor  
 Department of Mechanical Engineering

**Lab staff in-charge:** Mr. Jason M.J.  
 Trainee Institute  
 Department of Mechanical Engineering

**Jyothi Engineering College**

**COURSE OUTCOMES**

Sl.No	DESCRIPTION	PO & PSO MAPPING
C320	Students are capable of developing 2D models of machine components, complex geometries etc. using Modeling Software.	PO1,PO2,PO3,PO4,PO5,PO6,PO10,PO12,PSO1,PSO2,PSO3
C321	Students are capable to assembly the parts created to develop the whole mechanism.	PO1,PO2,PO3,PO4,PO5,PO6,PO10,PO12,PSO1,PSO2,PSO3
C323	Students are capable to generate 2D sketches of the assembled parts and provide dimensions and symbols to generate 2D drawing.	PO1,PO2,PO3,PO4,PO5,PO6,PO10,PO12,PSO1,PSO2,PSO3
C324	Students can apply their knowledge in reporting, CAD geometries and to modify and fix using different modeling methods and their modeling controls as a part of pre-processing of the FE problem in Analysis software.	PO1,PO2,PO3,PO4,PO5,PO6,PO10,PO12,PSO1,PSO2,PSO3
C325	Students have knowledge in post-analysis measures, fluid flow and thermal analysis problems in Analysis software.	PO1,PO2,PO3,PO4,PO5,PO6,PO10,PO12,PSO1,PSO2,PSO3

**COURSE OUTCOMES TO MAPPING:**

Sl.No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C320	1	2	3	1	1	1				5		1
C321	1	2	3	1	1	1				3		1
C323	1	2	3	1	1	1				5		1
C324	1	2	3	1	1	1				3		3
C325	1	2	3	1	1	1				3		3
Avg	2	2	2	1	1	1				3		1

Course Code	Course Name	L.T.P. Credit	Year of Introduction
ME332	COMPUTER AIDED DESIGN AND ANALYSIS LAB	0-0-3-1	2016

**Prerequisite:** ME308 Computer aided design and analysis

**Course Objectives:**

- To provide working knowledge on Computer Aided Design methods and procedures
- To impart training on solid modelling software
- To impart training on finite element analysis software

**Subjects:**

Introduction to solid modelling and Finite Element Analysis software

Exercises on modelling and assembly

- Creation of higher end 3D solid models (minimum 3 models)
- Creation of assembled views of riveted joints, cotter joints and shaft couplings (minimum 3 models)

Exercises on the application of Finite Element Method Finite Volume Method in engineering systems:

- Structural analysis (minimum 3 problems)
- Thermal analysis (minimum 2 problems)
- Fluid flow analysis (minimum 1 problem)

**Expected outcome:**

The students will be able to

- Gain working knowledge in Computer Aided Design methods and procedures.
- Solve simple structural, heat and fluid flow problems using standard software.

**Points to note:**

Use appropriate solid modeling software (like CATIA, Solid Works, Pro/E, IDEAS, Siemens Solid Edge and NX, free software, etc.) and package (like ANSYS, Comsol Multi Physics, ABAQUS, ALGOR, ADINA, Simulia, Femap, Simulia, free software, etc.) may be used.

**Evaluation:**

- Class exercises: 40 marks
- Regular class work: 10 marks
- Final Internal exam using software: 50 marks

All the above three evaluations are mandatory.

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Course Code	Course Name	L.T.P. Credit	Year of Introduction
ME334	MANUFACTURING TECHNOLOGY LABORATORY - II	0-0-3-1	2016

**Prerequisite:** ME312 Metrology and Instrumentation

**Course Objective:**

- To provide programming practice on CNC machine tools.
- To impart knowledge on the fundamental concepts and principles of metrology
- To explain the need of various modern measuring instruments and precision measurements

**List of Experiments/Exercises:**

Exercises	Sessions
Exercise on grinding machine.	1
Study and preparation of program, simulation and exercise on CNC lathe-turning, step turning, taper turning, thread cutting, ball and cham turning etc.	2
Study and preparation of program, simulation and exercise on CNC milling machine - surface milling, pocket milling, contour milling etc.	2

**Basics for mechanical measurements**

Calibration of vernier caliper, micrometer and dial gauge etc.  
 Determination of dimensions of given specimen using vernier caliper, micrometer, height gauge, bore dial gauge etc.  
 Determination of dimensions of a rectangular, square, cylindrical specimen using slip gauges and comparators, wall height gauge, vernier caliper etc.

**Experiments on Limits, Fits and Tolerance**

Determine the class of fits between given shaft and hole etc.

**Linear measurements**

Study of different linear measuring instruments  
 Calibration of LVDT using slip gauges.

**Straightness error measurement**

Study of different straightness error measuring instruments - basic principle of auto collimator and spirit level  
 Measurement of straightness error of a CI surface plate using auto collimator and comparing with spirit level  
 Laser interferometer used to determine straightness error

**Angular measurements**

Determine straightness error of a straight edge by the wedge method using slip gauges

**Angle measurements**

Angular measurements using bevel protractor, combination sets, dial indicators, angle indicator etc.  
 Measurement of angle and width of a V block and comparing with combination sets  
 Measurement of angle using sine bar of different angles



**Cheruthuruthi, Kerala, India**  
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# Jyothi Engineering College

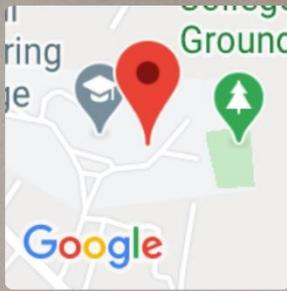
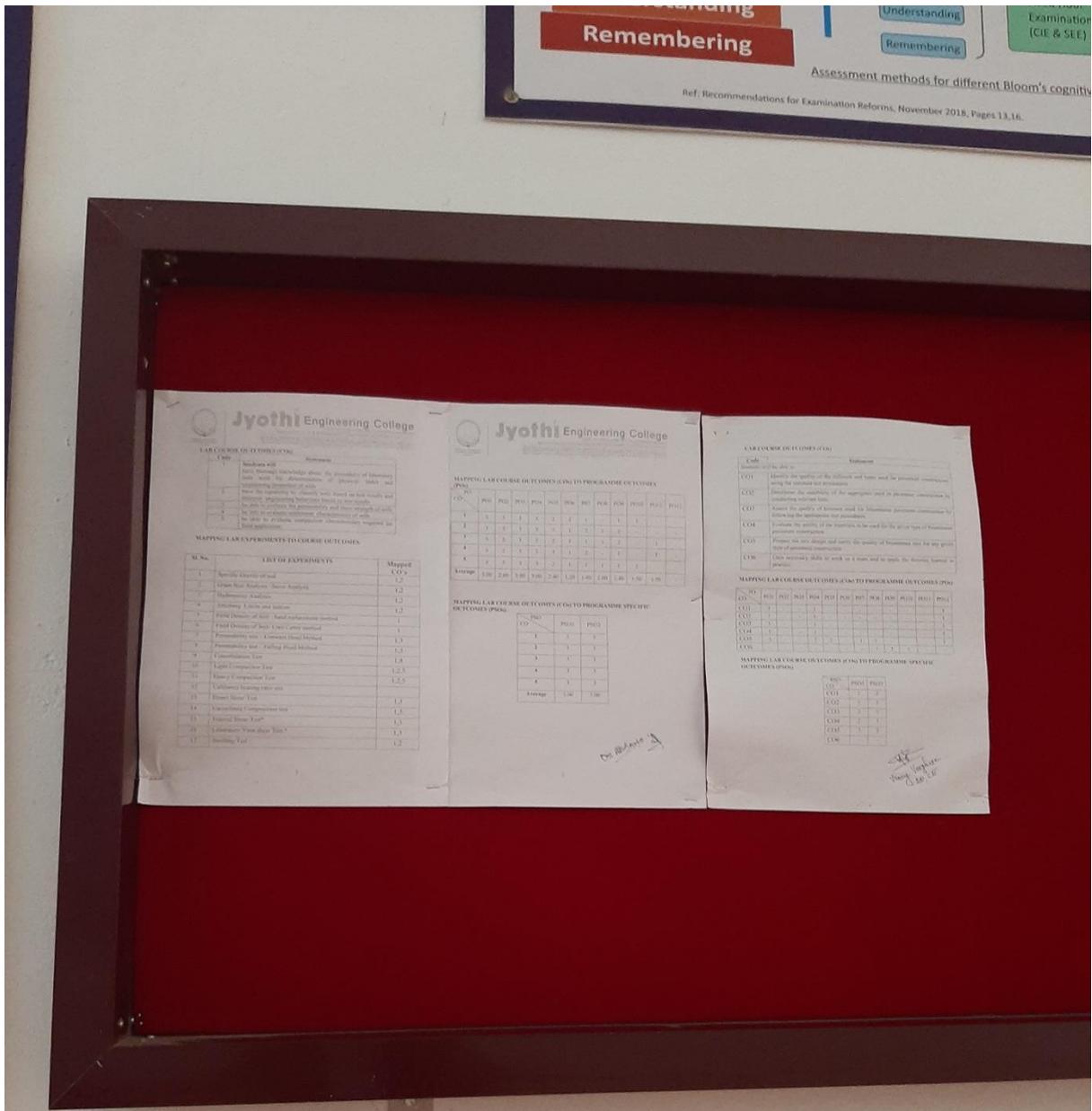
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## Civil Engineering



**Cheruthuruthi, Kerala, India**  
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