• **About COEP:**
College of Engineering, Pune (COEP), established in 1854 is one of the Pioneers Government Aided Autonomous Engineering Institute catering Technical Education and Research to the country.

The dedicated CAD/CAM/CAE & PLM Center of Mechanical Engineering Department was established with the objective of providing Engineering Design Environment for the academic, research community. This department also caters corporate training and the design, development service requirement of Industries across the country. The CAD/CAM/CAE Center is equipped with High-End Computer facility, Dedicated and Experienced faculty members.

• **About CAD/CAE Software:**
  Creo Parametric (formerly ProEngineer Wildfire) is a parametric integrated 3D CAD/CAM/CAE solution created by Parametric Technology Corporation (PTC), USA. It is the first to market with Parametric, feature-based, Bi-directional associative solid Modeling software. This Software is widely used in many Indian and MNC industries such as TATA motors, Force motors, BAJAJ, Cummins, JohnDeer, Kirloskar, Greaves Cotton.

  ANSYS is a general purpose Finite Element Modeling package for numerically solving a wide variety of mechanical problems. These problems include: static/dynamic structural analysis (both linear and non-linear), heat transfer and fluid problems, as well as acoustic and electromagnetic problems. It is also equipped with Optimization & Sensitivity analysis solution.

• **COURSE OBJECTIVE:**
Design, Optimization, Manufacturing and Product Development is the complete set of activities needed to bring new technologies and services to humankind. This course is designed to provide theoretical and practical knowledge of computer tools necessary to transform the product ideas of Entrepreneurs into a marketable and commercially viable product which satisfies most of the customer’s requirements.

• **COURSES OFFERED:**
  **Module 1:** Design Automation using Creo Parametric 2.0/ ProEngineer WF5.0 CAD Software.
  Duration - 5 weeks, 75 hrs.

  **Module 2:** Engineering Analysis using ANSYS 14.0 CAE Software.
  Duration - 5 weeks, 75 hrs.

  **Module 3:** Design Optimization using ANSYS 14.0 Software.
  Duration - 2 weeks, 30 hrs.

• **COURSE FEES:**
  (Includes Registration, Service tax, Course material, Internet facility, Certificate, Tea-Snacks). Pay fees in Cash OR submit a Cheque /Demand Draft in favour of “Production Engineering DDF- A/C IRG”.

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<th>Module</th>
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<td>Module 3</td>
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<td>Module 1 &amp; 2</td>
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<td>Module 1,2 &amp; 3</td>
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• **COURSE TIMINGS:**
  **Evening batch:**
  Monday to Friday, 5.30 to 8.30pm
  **Weekend batch:**
  Saturday – Sunday, 8 to 1.30pm

  **For Further Information contact:**
  The Co-Ordinator,
  Dr. Chougule N.K.,
  CAD/CAM/CAE & PLM Center,
  Mechanical Engineering Department,
  College of Engineering Pune (COEP).
  9423247208, 20-25507241, 9890918758, 8308303748
  chougulen@gmail.com, nkc.mech@coep.ac.in

  Download Brochure on [www.coep.org.in](http://www.coep.org.in), click on Quick Link
FACULTY MEMBERS:
1. Prof.(Dr.) Chougule N.K., COEP
2. Prof. (Dr.) Pande D.W., COEP
3. Prof. (Dr.) Patil S.B., COEP
4. Prof. (Dr.) Khond M.P., COEP
5. Experts from Industry

COURSE OUTLINE:
Module 1- Design Automation using CREO Parametric 2.0 / ProEngineer WF5.0 CAD software (5 weeks)
- New Product Development (NPD) cycle, Introduction to CAD/CAM/CAE and Product Lifecycle Management (PLM), Design for manufacturing and assembly (DFMA).
- Modelling Techniques- CSG, Brep, parametric, feature based. Reverse engineering design process.
- Review of ProE WF5.0- 2D skether, 3D modeling-Skether features, Placed features, Copying and modification features, Reference features, Bottom up and Top down assembly, drafting and formatting.
- Direct CREO and Parametric CREO modeling, Base (sketch) features, placed features, modifying and duplicating features, Datum (reference) features, Bottom up assembly process, generation of drawings, BOM generation, creating drawing formats.
- Pro-programming design automation, Understand integration between CAD software and Higher Level Language (C++, Visual basic, MS Excel etc)
- Introduction to Kinematic mechanism / Animation

Module 2- Engineering Analysis using Ansys CAE software (5 weeks)
- General Analysis Procedure: Preliminary Decisions, Preprocessing, Create Solid Model, Create FEA Model, Define Material, Solution, Define Loads, Post-processing, Review Results, Verification
- Creating Finite Element Model: Overview, Element Attributes, Multiple Element Attributes, Workshop, Controlling Mesh Density, Mesh Order Control, Generating the Mesh, Changing a Mesh, Mapped Meshing, Mesh Extrusion, Sweep Meshing, F.E. Imports, Workshops
- Defining Material: Units, ANSYS Defined Materials, Material Model GUI, Listing Defined Materials, Workshops
- Loading: Define Loads, Nodal Coordinate Systems, Displacement Constraints, Concentrated Forces, Forcing Loads
- Solution: Solvers, Definitions, Multiple Load-steps, Workshops
- Structural Analysis: Linear and static analysis of 1D stepped bar, 2D and 3D truss, 2D beam, 2D frame, CST and 3D solids. Preprocessing, Solution, Post-processing, Workshops
- Thermal Analysis: Steady state thermal analysis, Preprocessing, Solution, Post-processing, Workshops

Module 3- Design Optimization using ANSYS software (2 weeks)
Introduction to Optimization Technique

ANSYS Mechanical APDL Basics
Introduction to ANSYS DesignXplorer:
- Design of Experiments, Variational Techno., Design for Six Sigma, DesignXplorer Capabilities, DesignXplorer Workflow, File Management

Using DesignXplorer
- Choosing a DX Method, Parameter Definitions, Parameters from CAD, Design Points, Responses, Goal Driven Optimization, Custom Design Points, Creating a DX Scenario

**The coordinator reserves the right of amendment to the course content.

ELIGIBILITY OF PARTICIPANTS:
The course is meant for Degree/Diploma/ITI students in Mechanical/ Production / Automobile Engineering and working professional.

CERTIFICATE:
A Certificate from College of Engineering, Pune will be awarded on successful completion of the course.

** In any case no Refund of course fees on cancellation of admission is permitted.

COLLEGE OF ENGINEERING, PUNE
CAD/CAM/CAE Center, Mechanical Engineering Department,
Shivajinagar, Pune-05.