



**Rajiv Gandhi College of Engineering, Research &  
Technology, Chandrapur**

## **REPORT**

**DEPARTMENT OF MECHANICAL ENGINEERING**

**ONE WEEK WORKSHOP**

**ON**

**CATIA SOFTWARE**

**Date: 2nd – 7th December, 2019**

## BRIEF REPORT

A one week workshop on “CATIA Software” has been organized by Department of Mechanical Engineering from 02-12-2019 to 07-12-2019.

CATIA software is a multi-platform software suite for computer-aided design, computer aided manufacturing. The main aim of program was to make students able to draw 3D model of their project and acquire skills and knowledge to get employment opportunities in the design area. The sole purpose of workshop is to get students acquaint with the CATIA user interface which is currently dominating industrial design engineering industry.

Engineering drawing is the best way to express engineering concepts and exchange information. If any component is to be specified, the information needed is: all the dimensions of the component, Description of the material to be used, Parameters like weight, tensile strength, ductility, etc.

CATIA provides the capability to visualize designs in 3D. CATIA can be used at different stages of the design - ideate, draw, test and iterate. The software comes with different workbenches (“modules”) that allow CATIA to be used across varied industries – from parts design, surface design and assembly to sheet metal design. CATIA can also be used for CNC. CATIA offers many workbenches that can be loosely termed as modules. A few of the important workbenches were taught in workshop. Their functionality description is given below:

**1. Part Design:** The most essential workbench needed for solid modeling. This CATIA module makes it possible to design precise 3D mechanical parts with an intuitive and flexible user interface, from sketching in an assembly context to iterative detailed design.

**2. Generative Shape Design:** allows you to quickly model both simple and complex shapes using wireframe and surface features. It provides a large set of tools for creating and editing shape designs. Though not essential, knowledge of Part Design will be very handy in better utilization of this module.

**3. Assembly:** The basics of product structure, constraints, and moving assemblies and parts can be learned quickly. This is the workbench that allows connecting all the parts to form a machine or a component.

In conclusion, The CATIA suite is a powerful design tool that is growing in popularity due to the powerful functionality it offers. Since the software is vast, it is better to get professional training in CATIA to make maximum use of its features.

This workshop had been arranged in two slots

- 1) Morning Slot (From 10.30 AM to 12.30 PM)
- 2) Afternoon Slot (From 10.30 AM to 12.30 PM)

Total 98 Students has registered for the course, the workshop has successfully completed at the best effort of Prof. P S Buchunde & Prof. A R Vairagade under the guidance of Prof. P H Sahare with the immense support and motivation by the Dr. P A Potdukhe, Head of Mechanical Engineering Department.

### Day wise Completion of Topics:-

Day	Date	Topics Covered
Day-1	02/12/2019	Introduction, Sketcher, Sketcher Tools
Day-2	03/12/2019	Constraints, Sketched Based Features Tools- PAD/ POCKET
Day-3	04/12/2019	Reference Plane, Multi-pad, Multi-pocket
Day-4	05/12/2019	Sketched Based Feature- Shaft, Trim
Day-5	06/12/2019	Sketched Based Feature- Hole, Arrays
Day-6	07/12/2019	Sketched Based Feature-Draft, Stiffener, Fillet, Chamfer, Slot
Day-7 (Extra)	09/12/2019	Multi-section of solids, Assembling

Detailed timeline of workshop is as follows. On day 1, our respected HOD sir started with a welcome speech to students with remarkable mention on importance of knowledge of CAD and industrial design engineering in today's era. With a high note to that, Prof. P.H. Sahare sir also added the various software's available in the industry for CAD modeling and Analysis with special emphasis on role of mechanical engineer as design engineer in industry. After orienting students about workshop, Prof. P.S. Buchunde and Prof. A.R. Vairagade started with the first module-Part design in CAD designing. At the end of Day 1 students were well aware of various modules in CATIA. Drawing parts (2D) was the main outcome of Day 1 followed by a practice session.

Session of day 2 started with practicing day 1 sketching module. Doubts of many students were cleared. On day 2, students were taught about sketch based features namely padding and pocketing. In this students were taught to add thickness to their respective sketches to make a 3D model. Similar to day 1, there was practice session at the end of session.

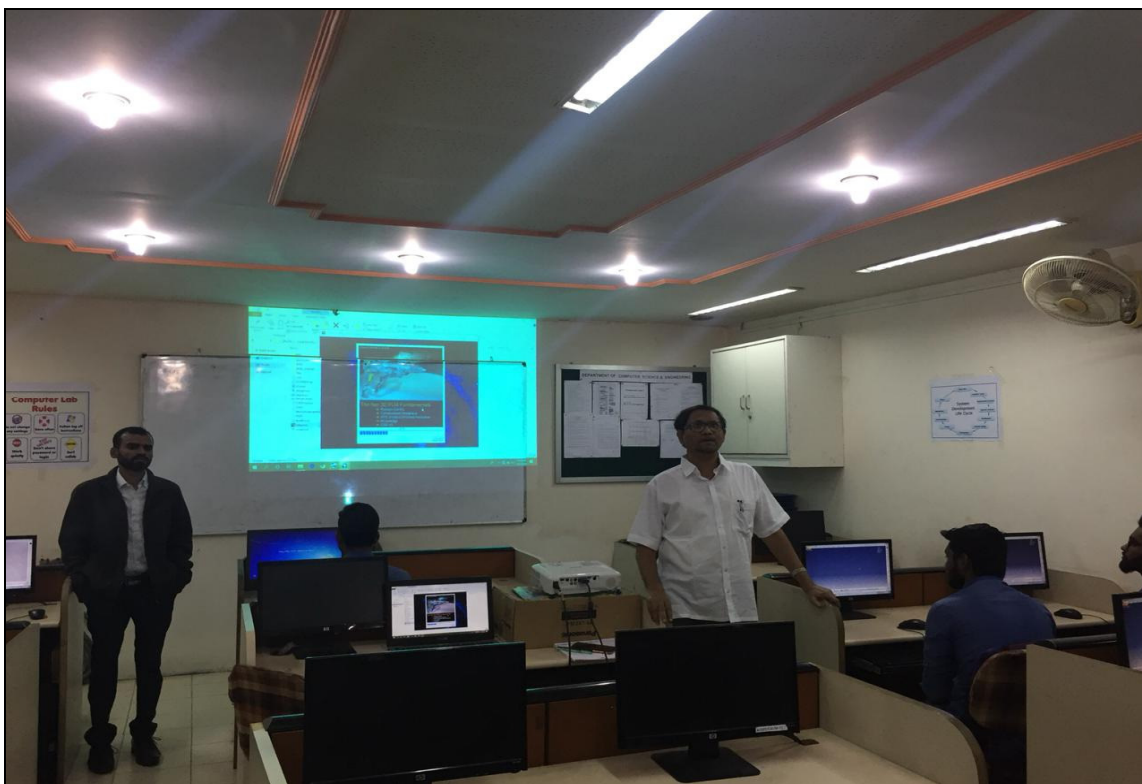
Session of day 3 started with doubt solving and practice of previous day padding and pocketing. On day 3, students studied about simultaneously pocketing and padding various sketches. Students were able to draw their respective project parts.

On day 4, students were taught about shaft and trim sketch based features. Students were successfully demonstrated modeling of cone pulley in 3D. Also pad drafting toolbar was taught. Day ended with practice session and doubt solving session.

On day 5, students studied creating hole and grooves in part. Special emphasis on making patterns of selected features and sketches made. Patterns (arrays) linear and circular were taught. Doubt solving and practice session followed.

On day 6, sketch based features toolbars were completed and drawing repeated patterns were taught to the students. Many sketch based features like chamfer, fillet, stiffener, ribs, slots, etc were taught to students.

On day 7, students were taught about multi-sections solids drafting and assembling of various parts designed during the workshop schedule. Many students demonstrated assembly drawings of their final year projects. Students seemed happy with the learning experience and gave satisfactory feedback for the program.



**Head of the Mechanical Department Dr. P A Potdukhe delivering opening speech for one week workshop on “CATIA Software”**



**Co-ordinator Prof. P H Sahare briefing about the importance of “CATIA Software” and its career opportunities.**





**Prof. A R Vairagade & Prof. P S Buchunde giving hands on training on "CATIA Software"**



**Students practicing "CATIA Software"**

