

# Four Weeks Short Term Value Added Course On Part/Assembly Modeling using SolidWorks/PTC Creo

## (July 12 - August 11, 2022)

## **Organized by:**

## Department of Mechanical Engineering

### FACULTY OF ENGINEERING

(Approved by All India Council for Technical Education (AICTE), New Delhi)

## TEERTHANKER MAHAVEER UNIVERSITY

## MORADABAD

(Established by an 'Act' (No. 30) of 2008 of the Government of Uttar Pradesh and University Grants Commission (UGC), vide letter No. F. 9-31/2008(CPP-1) dated October, 2008.)

## **About TMU**

The University is located on National Highway-24, 144 Km from New Delhi. The University stands committed to the ideals of Lord Mahaveer - Right Philosophy, Right Knowledge, and Right Conduct in all the spheres of activity and aspire to be recognized as the ultimate destination for world class education.

The multi-disciplinary University offers career oriented programmes at all levels i.e. UG, PG and Doctoral degrees across diverse streams, namely, Medical, Dental, Pharmacy, Nursing, Paramedical Sciences, Physiotherapy, Hospital Administration, Physical Education, Management, Engineering, Polytechnic, Law, Fine Arts, Jain Studies, and Agriculture to meet rising aspirations of the youth.

## **About Faculty of engineering**

Faculty of Engineering is AICTE approved institute of academic excellence in Engineering, Technology and Sciences. It's student centric approach focuses on hands-on training along with imparting sound theoretical knowledge to cater to the current needs of industries. The learning process is supported by unique skill enhancement programmes; value added courses and extensive practical lab work in line with the market trends.

The faculty of engineering has nine academic departments with around hundred full time faculty members. It offers programmes at Bachelor, Post-Graduate and Doctoral level, covering major branches of engineering and sciences.

## About Mechanical Engineering

#### Department

Mechanical Engineering department is established to cater training and knowledge in the field of Mechanical technology to impart services to today's need. The department has well equipped laboratories which include Engineering Mechanics Lab, Strength of Materials Lab, Thermodynamics Lab, Fluid Mechanics Lab, Heat Transfer Lab, Refrigeration and Air Conditioning Lab, Internal Combustion Engine Lab, Hydraulic Machine Lab, Production Technology Lab, Unconventional Manufacturing lab and a well furnished workshop. Apart from regular experimental facilities, these labs contain some of the state of art facilities like Electro Discharge Machining and Plasma Arc Welding. The department also has well developed CAD and CAM Lab with facilities like PLC trainer and CNC Milling station.

#### **Organising Committee**

PATRON Prof. (Dr) R. K. Dwivedi, Director, FoE

**CONVENER** Dr Himansh Kumar, HOD ME Department

#### **COURSE COORDINATORS**

Mr. Arun Gupta, ME Department Mr. Sunil Kumar Gaur, ME Department

#### **IMPORTANT DATES**

Last date of Registration: June 30, 2022 Notification about Selection: July 02, 2022

#### **Registration form should be sent to:**

Department of Mechanical Engineering Faculty of Engineering, Teerthanker Mahaveer University Moradabad

Email: <u>himansh.engineering@tmu.ac.in</u> <u>arun.engineering@tmu.ac.in</u>

Cont. No.: 9456016503, 9457205150 Room No.: - 5255, FOE-TMU

### **Course Objectives**

This short-term course "Part/Assembly Modeling using SolidWorks/PTC Creo" is very useful for engineers. SolidWorks/PTC Creo is a software tool that is used right from the conceptualization of the design until the final manufacturing of the product. As the world's leading tool in designing, it supports interactive learning of 3D modeling. The implementation of such software can lend several benefits to the users, such as shortened Design Cycle, increased Productivity of Engineers and Designer, faster Deliver Innovative Products. This STC aims to give students and professionals the essentials that are needed to become certified design experts. The STC will help individuals use the software with confidence and design/draft the next innovative thing.

#### Duration

80 Hours

#### **Prerequisites**

Basic Knowledge of engineering drawing, drawing interpretation skills and projections.

#### Who should attend

Faculty members / research scholars / UG & PG students from academic institutes approved by the AICTE /UGC /MHRD and Scientists / Engineers working in private / Public/ Govt. organizations / industries etc. can attend the course.

#### **Course Fee**

TMU Students:Rs. 1000NON TMU Student:Rs. 2000Participants will be selected on first-come-first-servedbasis.

## Certification

After completion of successful short-term course, participants will receive a certificate by Teerthanker Mahaveer University Moradabad.

## **Course Contents**

## STC on "SolidWorks"

# Week 1: Introduction to SolidWorks and their sketch Entities & Tools (15 hours)

Features of SolidWorks, Various products available in SolidWorks for Product Design & Assembly Modeling. SolidWorks Graphical User Interface, Hardware and Software requirements.

Sketch Tools - Line, Circle, Arc, Ellipse, Rectangle, Slots, Polygon, Ellipse, Partial Ellipse, Spline, Points, Text, Construction geometry, Fillet, Chamfer, Offset, Convert entities, Trim, Extend, Mirror, Dynamic Mirror, Move, Copy, Rotate, Scale, and Stretch, Sketch pattern Close Sketch to Model.

#### Week 2: Part Modeling Tools and Features (24 hours)

Creating reference planes, Creating Extrude features, Thin feature, Applying draft, Selecting contours. Creating Revolve features – Selecting Axis, Thin features, Swept, Thin, Loft, Guide curves, Creating Chamfer, Shell, Rib, Creating Patterns, **Project-I** 

#### Week 3: Assembly Modeling Tools and Features (18 hours)

Top down and bottom-up assembly; approach Applying Standard Mates- Coincident, Parallel, Perpendicular, Tangent, Concentric, Lock, Distance, Angle, Applying Advanced Mates, Mechanical Mates, Manipulating Components, Physical Dynamics, Assembly Pattern.

#### Week 4: Generating Drawing:

## (24 hours)

Introduction To Angle Of Projection, Generating Views, Auxiliary Views, Detailed Views, Crop view, Broken – Out Section, Broken Views, Section View, Drawing properties, Bill of Materials, Sheets And Templates, Sheet Format, **Project-II** 

## STC on "PTC Creo"

# Week 1: Introduction to PTC Creo and their<br/>geometric featuresPTC Creo and their<br/>(15 hours)

Introduction to the Creo Parametric Basic Modeling Process, Understanding Creo Parametric Concepts, Using the Creo Parametric Interface.

Selecting Geometry, Features, and Models Editing Geometry, Features, and Models, Creating Sketcher Geometry, Using Sketcher Tools, Creating Sketches for Features

#### Week 2: Part Modeling Tools and Features

#### (24 hours)

Creating Datum Features: Planes and Axes, Creating Extrudes, Revolves, and Ribs, Sketcher Workflow, Creating Sweeps and Blends, Creating Holes, Shells, and Draft, Creating Rounds and Chamfers, Group, Copy, and Mirror Tools, **Project-I** 

#### Week 3: Assembly Modeling Tools and Features (18 hours)

Assembling with Constraints, Assembling with Connections, Exploding Assemblies, Drawing Layout and Views, Creating Drawing Annotations, Using Layers, Creating Patterns, Measuring and Inspecting Models.

#### Week 4: Part/Assembly Modeling Enhancements (24 hours)

Investigating Parent/Child Relationships, Capturing and Managing Design Intent, Resolving Failures and Seeking Help, Interface Enhancements, Part Modeling Enhancements, Assembly Enhancements, Drawing Enhancements, **Project-II** 

## **REGISTRATION FORM**

Four Weeks Short Term Value Added Course On Part/Assembly Modeling using SolidWorks/PTC

Creo

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Phone:	
E-mail:	1 2 2 3
Qualifications:	No. 10 No. 10
Experience:	Years

(Signature of applicant)

Signature of Head of Department/School/Institute