ME-635 COMPUTER AIDED DESIGN

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Office Hours: will be announced in class and posted in instructor's website – see **Instructor Schedule Grid**

Text Books:

1. Principles of CAD/CAM/CAE Systems by Kunwoo Lee, Addison-Wesley, 1999
   ISBN 0-201-38036-6
2. Advanced Tutorial for Creo Parametric Releases 1.0 & 2.0
   By Roger Toogood, SDC Publications
   ISBN: 978-1-58503-756-8

Reference:

3. Creo Parametric 1.0 Tutorial and MultiMedia DVD
   By Roger Toogood, SDC Publications
   ISBN 978-1-58503-692-9

Course Description:

This is a course introducing various concepts of CAD (Computer Aided Design) and CAM (Computer Aided Manufacturing) as applied to Mechanical Engineering design problems. Topics include solid modeling, assembly, creating detailed drawing of solid models and production drawings, manufacturing models and generating cutter location data (CL Data) in Numerical Control machining such as turning and milling machines for design models. The laboratory component involves use of current CAD/CAM software packages.

Prerequisites: ME-616 and ME-622 or department approval.

Week Number:	TOPICS	Lab. works	Assignment
1	Introduction – course overview	Begin Creo Parametric; Lesson 1 – Protrusions & Cart Project Introduction	Creo Cart Project parts: Handle_pin; Front_spr_plate; Arm_vbrack; Arm_brack; Front_spring
2	Introduction to CAD/CAM/CAE & CIM; Component of CAD/CAM/CAE Systems – Hardware and Software Chapter 1 & 2	Lesson 2 - Sweeps Lesson 3 – Tweaks and Rounds	Creo Cart Project parts: Arm_upper; Arm_lower; Fram_low_rgt; Fram_upp_rgt; Hub_cap; Lugnut.
3	Component of CAD/CAM/CAE Systems – Hardware and Software … Continued. Chapter 2	Lesson 4 – Patterns and Family Tables	Creo Cart Project parts: Cargo; Spring; Tubing; Wheel; Hex_bolt; Handle.
4	Basic Concepts of Computer Graphics - Graphics Libraries; Coordinate Systems; Transformation matrix; Graphical User Interface. Chapter 3	Lesson 5 - User Defined Features	Creo Cart Project parts: Mount; Wheel_axle; Front_axle; Front_wheel; Front_wheel_brack; Pillar_cap.
5	Geometric Modeling Systems – Wireframe, Surface, and Solid Modeling Systems. Chapter 5	Lesson 6 – Creo PROGRAM and Layers Lesson 8 – Working with Assembly	Creo Cart Project parts: Front_pillar; Frame_front.prt; Frame_right.prt from frame_right.asm; Right_side.asm;
6	Geometric Modeling Systems – Nonmanifold, Assembly and Web-Based Modeling Systems. Chapter 5.	Lesson 7 - Drawings	Creo Cart Project parts: Front Wheel Assembly with BOM (Bill of Materials);

			Detailed drawing of Front_spr_plate; Detailed drawing of Front_wheel_brack.
7	Representation and Manipulation of Curves. Chapter 6	Creo MANUFACTURE	Basic Turning
8	**Mid-term Exam**	**Mid-term Exam**	**Mid-term Exam**
9	Representation and Manipulation of Curves. Chapter 6	Creo MANUFACTURE	Thread and Groove turning; Profile, Face, Surface and Hole Making Milling
10	Representation and Manipulation of Curves. Chapter 6	Creo MANUFACTURE	Mill Volume Sequence; Mill Window Sequence
11	Numerical Control – Introduction Chapter 11	Creo MANUFACTURE	Expert Machinist
12	Numerical Control – Introduction Chapter 11	Creo MANUFACTURE	4-Axis Milling
13	Numerical Control – Continued Chapter 11	Creo MANUFACTURE	Working on Final Project
14	Standards for Communicating Between Systems Chapter 14	Creo MANUFACTURE	Finishing Final Project
15	**Final Exam and Final Project Due**		

Grading Scheme:

The grade will be based on the following:

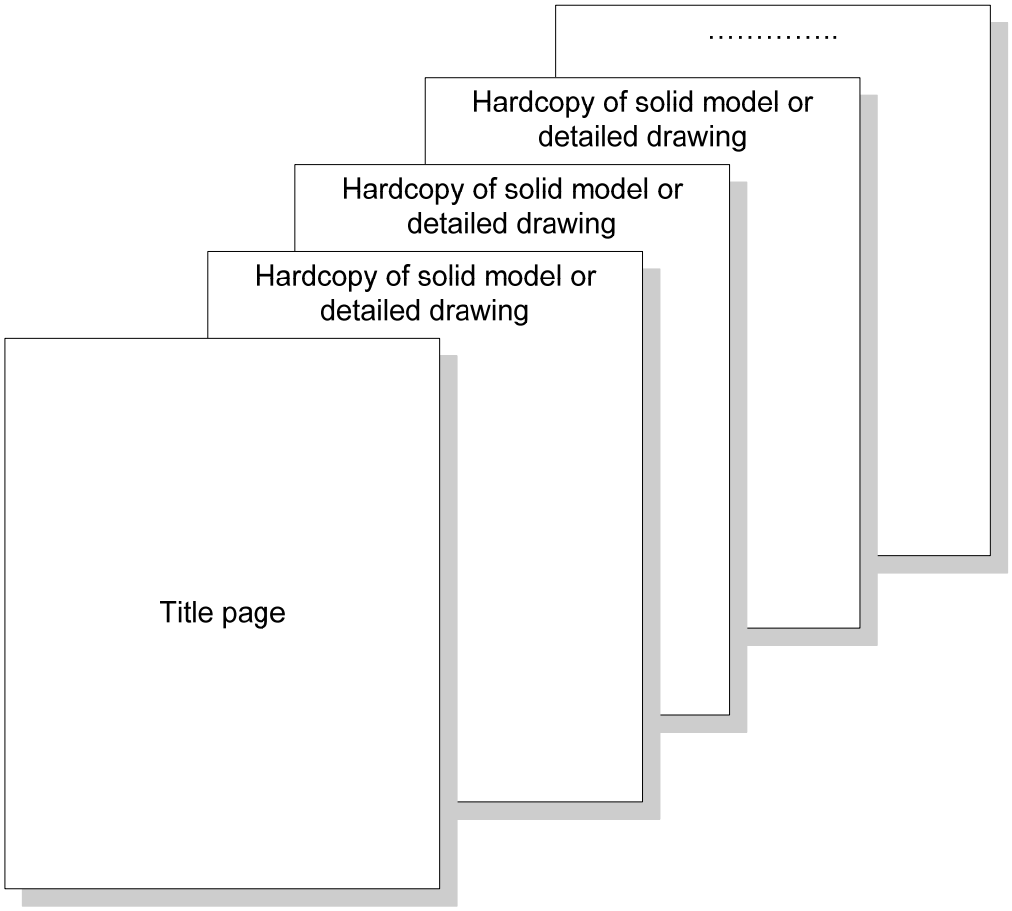
Homeworks	10%
Lab Works – Cart Project	30%
Midterm and Final Exams	30%
Final Project	30%
Total	100%

Homework related to the lectures will be assigned, collected and graded.

The laboratory will be in MEC-219, and will have hands-on sessions to cover the basics and advanced features of the Creo Parametric and Creo MANUFACTURER.

SUBMITTED ASSIGNMENT FORMAT:

Projects / assignments should be submitted according to the following format:



Sample of Title Page:

NJIT
New Jersey's Science & Technology University

ME-635 Computer Aided Design

MECHANICAL and INDUSTRIAL ENGINEERING DEPARTMENT

AT NEW JERSEY INSTITUTE OF TECHNOLOGY

Project Title Here!!!!

Prepared For:

Dr. Herli Surjanhata
ME 635
Section: 102

Report By:

Your Name Here!!!

Date Submitted:
1/9/2011