New Jersey Institute of Technology Department of Engineering Technology MET 205 Advanced CAD

COURSE NUMBER	MET 205	
Course Name	Advanced CAD	
Course Structure	2-2-3 (lecture hr/wk - lab hr/wk - course credits)	
Course Coordinator/ Instructor	Dr. J. Sodhi / Maximiliano Rodriguez	
COURSE DESCRIPTION	This course introduces advanced CAD applications, including attribute and attribute extraction, external reference files, solid modeling, surface rendering and animation. Upon successful completion of this course, students should be able to use a CAD software package to develop animations consisting of 3D models with rendered surfaces.	
PREREQUISITE(S)	MET 105	
COREQUISITE(S)	None	
REQUIRED, ELECTIVE OR SELECTED ELECTIVE	Elective	
REQUIRED MATERIALS	Designing with Creo Parametric 9.0, By Michael J. Rider, ISBN: 978-1-63057-533-5	
Computer Usage Course Outcomes(CO)	 Software: <i>Creo Parametric</i> –PTC. By the end of the course students should be able to: Develop CAD models with Parametric CAD software. Apply knowledge of design criteria to CAD. Develop animated mechanisms with CAD. Conduct Engineering Analysis with CAD. Prepare Engineering documents/reports. 	
CLASS TOPICS	Sketch and Extrude, Parametric Modeling Fundamentals, Constraints & Parametric Relations, Parent/Child Relationships, Mirror & Revolve, Sweep, Pattern, Assembly, Graphic Feature, Part and Assembly Drawing Formats/Templates, Blend, Surfacing, CAD Mechanisms and Animation:	
	CAD Project:	
	Each student will model the parts for an assembly. Students	

	Students will mod evaluation of func	el the mechanism and conduct engineering tion. A Project Report will be submitted.	
STUDENT OUTCOMES	The Course Learning Outcomes support the achievement of the following MET Student Outcomes and TAC of ABET Criterion 9 requirements:		
	 Student Outcome (1) - an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline; Related CO – 1-4 Student Outcome (2) - an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline; Related CO – 1-4 		
	Student Outcome graphical commun non-technical env appropriate techni Related CO – 5	e (3) - an ability to apply written, oral, and nication in broadly-defined technical and ironments; and an ability to identify and use cal literature;	
	Student Outcome (4) - an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; Related CO –4		
GRADING POLICY	Homework	20 %	
GRading Folie F	Project	20 %	
	Two Ouizzes	30 %	
	Final Exam	30 %	
	Note : There are t be no makeup qui	wo quizzes during the semester. There will zzes.	
Academic Integrity	Academic Integrit is central to the id Cheating is strictly you are working o is your responsibil by knowing and for policy that is foun	y is the cornerstone of higher education and eals of this course and the university. y prohibited and devalues the degree that on. As a member of the NJIT community, it lity to protect your educational investment ollowing the academic code of integrity d at: <u>NJIT Academic Integrity Code</u> .	
	Please note that it responsibility to re	is my professional obligation and eport any academic misconduct to the Dean	

	of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at <u>dos@njit.edu</u> .
GENERATIVE AI	Student use of artificial intelligence (AI) is permitted in this course for certain assignments and activities. It is not permitted to be used in the assignments noted by the instructor, as doing so would undermine student learning and achievement of course learning outcomes. Additionally, if and when students use AI in this course, the AI must be cited as is shown within the <u>NJIT Library AI citation page</u> for AI. If you have any questions or concerns about AI technology use in this class, please reach out to your instructor prior to submitting any assignments.
Student Behavior	 See Individual Instructor Policies, which can include: No eating or drinking is allowed at the lectures, recitations, workshops, and laboratories. Cellular phones must be turned off during the class hours – if you are expecting an emergency call, leave it on vibrate. No headphones can be worn in class, unless allowed by the professor. Unless the professor allows the use during lecture, laptops should be closed during lecture. During laboratory, if you are finished earlier, you must show the professor your work before you leave class Class time should be participative. You should try to be part of a discussion
MODIFICATION TO COURSE	The Course Outline may be modified at the discretion of the instructor or in the event of extenuating circumstances. Students will be notified in class of any changes to the Course outline.
PREPARED BY Course Coordinated by	Maximiliano Rodriguez/ Dr. J. Sodhi Dr. J. Sodhi

CLASS HOURS Monday 6:00 PM – 10:05 PM MALL PC37

OFFICE HOURS:

By appointment maximiliano.rodriguez@njit.edu

HOMEWORK - IMPORTANT

1. Homework: Is due ONE week from the day it is assigned. It is due at the beginning of class. No late homework will be accepted.

GRADING LEGEND

GRADE	NUMERIC
	RANGE
А	90 to 100
B+	85 to 89
В	80 to 84
C+	75 to 79
С	70 to 74
D	60 to 69
F	0 to 59

NJIT ONLINE INFORMATION

The instructor will discuss these requirements on the first day of the course and/or post on their Learning Management System (LMS). Please become familiar

- Canvas: <u>https://canvas.njit.edu/</u>
- Zoom: <u>https://njit-edu.zoom.us/</u>
- Online Proctoring: <u>https://ist.njit.edu/online-course-exam-proctoring</u>

COURSE OUTLINE

Week	Date	Topics	Assignment
1	Jan 27 Feb 3	 Computer Aided Design (Ch. 1) Introduction & Design Process (Ch. 2) Sketcher (Ch. 3) Extrusions (Ch. 4) 	 HW 1: Review Questions Ch. 1 Review Questions Ch. 2 Sketcher Problems 3.5 & 3.6 HW 2:
2		Project Overview	• Extrusion Problems 4.1, 4.3, 4.11
3	Feb 10	Revolves (Ch. 5) • Sketch Files	HW 3: • Revolves Problems 5.1, 5.3, 5.5, 5.7
4	Feb 17	Patterns (Ch.6)	Prepare for Exam #1 HW 4 Due Week 6 • Patterns Problems 6.3, 6.5, 6.8
5	Feb 24	Exam #1 • Dimensioning Part 1 (Ch.7)	HW 4 Due Week 6 • Patterns Problems 6.3, 6.5, 6.8
6	Mar 3	 Dimensioning Part 2 (Ch.7) Engineering Drawings (Ch. 8) 	 HW 5: Selected Review Questions Ch. 7) Engineering Drawings Problems 8.1, 8.4, 8.6, 8.12
7	Mar 10	• Assemblies (Ch. 9)	HW 6: • Assembly Problems: 9.3, 9.4
8	Mar 24	Exam #2 Assembly Drawings (Ch. 10)	HW 7: • Assembly Drawing Problems:10.1, 10.2, 10.3, 10.10, 10.11, 10.12
9	Mar 31	Relations & Family Tables (Chapter 11)	HW 8: • Relations & Family Tables Problems: 11.1, 11.2, 11.3
10	Apr 7	Tolerancing & GD&T Part 1(Ch. 12)	HW 9: • Selected Review Questions Ch. 12

Week	Date	Topics	Assignment
			• Tolerancing & GD&T
			Problems: 12.1, 12.4
11	Apr 14	Tolerancing & GD&T Part 2(Ch. 12)	 HW 10: Selected Review Questions Ch. 12 Tolerancing & GD&T
			Problems: 12.6
12	Apr 21	Project Time	HW 11: • Project Report Draft
13	Apr 28	Project Time	HW 12 • Project Report
14	May 5	Final Review FINAL PROJECT REPORT DUE	
	TBD	Final Exam	