



AME 308 – Computer-Aided-Design for Aero-Mechanical Design

Units: 3 (28735, 28736, 28737)

Term—Day—Time: Spring 2021
2:00p.m. – 4:50p.m. T/W
9:00a.m. – 11:50a.m. Th

Location: SAL 127

Instructor: Dr. Yann D. Staelens

Office: OHE 430B

Office Hours: T: 10:00a.m. – 12:00p.m.
W: 10:00a.m. – 12:00p.m.

Contact Info: staelens@usc.edu
(213) 740-7754

Teaching Assistant:

Emma Singer

Office: TBD

Office Hours: TBD

Contact Info: eksinger@usc.edu

Andres Coronel

Office: TBD

Office Hours: TBD

Contact Info: acoronel@usc.edu

Orlando Martinez-Baltazar

Office: TBD

Office Hours: TBD

Contact Info: oamartin@usc.edu

Vihan Krishnan

Office: TBD

Office Hours: TBD

Contact Info: krishnan@usc.edu

IT Help:

USC Viterbi IT

Hours of Service: M-F: 8:00a.m. – 10:00p.m.

Contact Info: engrhelp@usc.edu

(213) 740-0517

<http://viterbiit.usc.edu/get-help>

Course Description

This course will introduce you to some of the CAD tools widely used in industry today. The tools will include a solid modeling package NX and a finite element package. We'll see how these tools enable you to perform in hours a variety of analysis tasks that would otherwise take weeks.

Learning Objectives

- 1) How to create properly constrained sketches using sketch tools, dimensions, and geometrical relationships.
- 2) How to create part features from sketches.
- 3) How to create surface features from sketches.
- 4) How to create technical drawings with the appropriate symbols.
- 5) How to create assemblies from parts and assembly relationships.
- 6) How to simulate the response of a structure to applied loads.
- 7) How to apply motion to assemblies.

Prerequisite(s): AME 204

Co-Requisite(s): AME 301

Recommended Preparation: AME 101 or AME 105

Course Notes

All course notes will be available for download from the course's Blackboard page.

Software Required

Siemens NX Software

Supplementary Materials

Sham Tickoo; NX 2020 for Designers, 13th Edition; CADCIM Technologies, Schererville, 2020
(Suggested)

Description and Assessment of Assignments

Grades will be determined from a combination of homework scores, project scores and exam scores. Typically, homework will be assigned each week. There will be one extended group project assigned towards the latter part of the semester. All assignments will be submitted electronically via Blackboard. Due dates will be posted with each assignment.

Grading Breakdown

Assessment Tool	% of Grade
Homework (10)	30
Project	20
Midterm	20
Final	20
Class Participation	10
TOTAL	100

Grading Scale

Course final grades will be determined using the following scale

A	85-100
A-	84-82
B+	81-78
B	77-74
B-	73-69
C+	68-64
C	63-59
C-	58-54
D	53-50
F	49 and below

One shall only submit original work. Any cheating will be reported to SJACS and an F will be recommended for the course.

Assignment Submission Policy

One is responsible for ensuring assignments are submitted by the listed due date and that all the documents needed to complete the assignment are contained in the zipped archive prior to transferring it to Blackboard. Credit will only be given for the documents actually submitted in the archive. *If one document has another document as a prerequisite (e.g., an assembly file requires the component part files) and the prerequisite is missing/corrupted/etc., you won't be credited for either document.* No late homework assignments will be accepted.

Grading Timeline

Every effort will be made to return graded assignments within one week of submission.

Course Schedule: A Weekly Breakdown

Week	Date	Topic	Homework Due
1	19-Jan	Introduction, NX - Basics, Sketches (Ordered)	
	20-Jan		
	21-Jan		
2	26-Jan	NX - Features (Ordered)	HW #1
	27-Jan		
	28-Jan		
3	2-Feb	NX - Drafts, Technical Drawing and Nomenclature	HW #2
	3-Feb		
	4-Feb		
4	9-Feb	NX - Features (Synchronous)	HW #3
	10-Feb		
	11-Feb		
5	16-Feb	NX - Assemblies	HW #4
	17-Feb		
	18-Feb		
6	23-Feb	NX - Assemblies and Fasteners (Advanced)	HW #5
	24-Feb		
	25-Feb		
7	2-Mar	NX – Surfaces	-
	3-Mar		
	4-Mar		
8	9-Mar	NX – Midterm	HW #6
	10-Mar		
	11-Mar		
9	16-Mar	NX - Finite Element Analysis I	HW #7
	17-Mar	NX - Finite Element Analysis I	
	18-Mar	NX - Finite Element Analysis I	
10	23-Mar	Wellness Day - No Lecture	-
	24-Mar	NX - Finite Element Analysis II	
	25-Mar	NX - Finite Element Analysis II	
11	30-Mar	NX - Finite Element Analysis II	-
	31-Mar	NX - Kinematic Analysis	
	1-Apr	NX - Kinematic Analysis	
12	6-Apr	NX - Kinematic Analysis	HW #8
	7-Apr	Wellness Day - No Lecture	
	8-Apr	NX - Geometric Dimensioning and Tolerancing (GD&T)	
13	13-Apr	NX - Geometric Dimensioning and Tolerancing (GD&T)	HW #9
	14-Apr	NX - Geometric Dimensioning and Tolerancing (GD&T)	
	15-Apr	NX - Project	
14	20-Apr	NX - Project	HW #10
	21-Apr	NX - Project	
	22-Apr	Wellness Day - No Lecture	
15	27-Apr	NX - Project	-
	28-Apr		
	29-Apr		

Important Dates

NX Midterm: Week 8

Tuesday Section: March 9th 2021 from 2-4.50 p.m. in SAL 127.

Wednesday Section: March 10th 2021 from 2-4.50 p.m. in SAL 127.

Thursday Section: March 11th 2021 from 9-11.50 a.m. in SAL 127.

NX Final: During Finals week

Tuesday section: Thursday May 6th 2021 from 2-4 p.m. in SAL 127.

Wednesday section: Monday May 10th 2021 from 2-4 p.m. in SAL 127.

Thursday section: Tuesday May 11th 2021 from 8-10 a.m. in SAL 127.

NX Group Project due: Friday May 7th 2021 by 10 a.m.

Last day to drop class without mark of "W": Friday February 5th 2021.

Last day to drop class with mark of "W": Friday April 30th 2021.

Statement on Academic Conduct and Support Systems

Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call

studenthealth.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call

suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press “0” after hours – 24/7 on call

studenthealth.usc.edu/sexual-assault

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) - (213) 740-5086 | Title IX – (213) 821-8298

equity.usc.edu, titleix.usc.edu

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298

usc-advocate.symplicity.com/care_report

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity | Title IX for appropriate investigation, supportive measures, and response.

The Office of Disability Services and Programs - (213) 740-0776

dsp.usc.edu

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Campus Support and Intervention - (213) 821-4710

campussupport.usc.edu

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101

diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call

dps.usc.edu

Non-emergency assistance or information.