



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

**Units:** 3 (28735, 28736, 28737)

**Term—Day—Time:** Spring 2022  
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](mailto:staelens@usc.edu)  
(213) 740-7754

### Teaching Assistant:

*Emma Singer*

**Office:** TBD

**Office Hours:** TBD

**Contact Info:** [eksinger@usc.edu](mailto:eksinger@usc.edu)

**IT Help:** USC Viterbi IT

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

**Contact Info:** [engrhelp@usc.edu](mailto: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 2021 for Designers, 14<sup>th</sup> Edition; CADCIM Technologies, Schererville, 2021 (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
<b>TOTAL</b>	<b>100</b>

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

### ***Important Dates***

NX Midterm: Week 8

Tuesday Section: March 1<sup>st</sup> 2022 from 2-4.50 p.m. in SAL 127.

Wednesday Section: March 2<sup>nd</sup> 2022 from 2-4.50 p.m. in SAL 127.

Thursday Section: March 3<sup>rd</sup> 2022 from 9-11.50 a.m. in SAL 127.

NX Final: During Finals week

Tuesday section: Thursday May 5<sup>th</sup> 2022 from 2-5 p.m. in SAL 127.

Wednesday section: Monday May 9<sup>th</sup> 2022 from 2-5 p.m. in SAL 127.

Thursday section: Tuesday May 11<sup>th</sup> 2022 from 8-11 a.m. in SAL 127.

NX Group Project due: Wednesday May 4<sup>th</sup> 2022 by 5 p.m.

Last day to drop class without mark of "W": Friday February 25<sup>th</sup> 2022.

Last day to drop class with mark of "W": Friday April 8<sup>th</sup> 2022.

## 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](http://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](http://policy.usc.edu/scientific-misconduct).

### **Support Systems:**

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

[studenthealth.usc.edu/counseling](http://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](http://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](http://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](http://equity.usc.edu), [titleix.usc.edu](http://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](http://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.

*Office of Student Accessibility Services - (213) 740-0776*

[osas.usc.edu/](http://osas.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](http://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](http://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](http://dps.usc.edu), [emergency.usc.edu](http://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](http://dps.usc.edu)

Non-emergency assistance or information.