**University of Southern California**
**Viterbi School of Engineering**
**Department of Aerospace and Mechanical Engineering**

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

*Practical Information*

| | |
|---|---|
| Class number: | Lecture - Lab 28732, 28733, 28734 |
| Number of Units: | 3 units |
| Hour/Day: | 2:00 p.m. – 4:50 p.m. M/T |
| | 9:00 a.m. – 11:50 a.m. T |
| | |
| Room: | SAL 127 |
| | SAL 109 |
| | |
| Instructor: | Dr. Yann D. Staelens |
| | OHE 400C |
| | (213) 740-7754 |
| | staelens@usc.edu |

Office Hours:  Monday:  9:30 a.m. – 12:00 p.m.
Tuesday:  12:50 p.m. – 1:45 p.m.

Textbook:  Sham Tickoo; NX 2019 for Designers, 12th Edition; CADCIM Technologies, Schererville, 2019 (Suggested)

*Course Objective*

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.

## Course Outline

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.

## Course Grading

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 two extended project assignments. All homework and project assignments will require both electronic and hardcopy submittals. Due dates/times will be posted with each assignment. We will make every effort to return graded assignments within one week. Homework will contribute 30% of the grade; projects 20%; class contribution 10% and exams 40%.

## Statement for Students with Disabilities

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to the instructor as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m. - 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

## Academic Integrity

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that an individual will submit his or her own work unless otherwise allowed by an instructor, and the dual obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. SCampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A. Should there be any suspicion of academic dishonesty, an automatic grade of F will be given for the given assignment or exam and students will be referred to the Office of Student Judicial Affairs and Community Standards for further review. The Review process is described at: *https://policy.usc.edu/student/scampus/*

## *Course Schedule*

| Week | Date | Topic | Homework Due |
|:---:|:---:|---|:---:|
| 1 | 26-Aug | Introduction, NX - Basics, Sketches (Ordered) | |
| | 27-Aug | | |
| | 27-Aug | | |
| 2 | 2-Sep | **No Lecture – Lab  (Labor Day)** | - |
| | 3-Sep | | |
| | 3-Sep | | |
| 3 | 8-Sep | NX - Features (Ordered) | HW #1 |
| | 9-Sep | | |
| | 9-Sep | | |
| 4 | 16-Sep | NX - Drafts, Technical Drawing and Nomenclature | HW #2 |
| | 17-Sep | | |
| | 17-Sep | | |
| 5 | 23-Sep | NX - Features (Synchronous) | HW #3 |
| | 24-Sep | | |
| | 24-Sep | | |
| 6 | 30-Sep | NX - Assembllies | HW #4 |
| | 1-Oct | | |
| | 1-Oct | | |
| 7 | 7-Oct | NX - Assemblies and Fasteners (Advanced) | HW #5 |
| | 8-Oct | | |
| | 8-Oct | | |
| 8 | 14-Oct | <span style="color:red">**NX – Midterm**</span> | - |
| | 15-Oct | | |
| | 15-Oct | | |
| 9 | 21-Oct | NX – Surfaces | HW #6 |
| | 22-Oct | | |
| | 22-Oct | | |
| 10 | 28-Oct | NX - Finite Element Analysis I | HW #7 |
| | 29-Oct | | |
| | 29-Oct | | |
| 11 | 4-Nov | NX - Finite Element Analysis II | - |
| | 5-Nov | | |
| | 5-Nov | | |
| 12 | 11-Nov | NX - Kinematic Analysis | HW #8 |
| | 12-Nov | | |
| | 12-Nov | | |
| 13 | 18-Nov | NX - Geometric Dimensioning and Tolerancing (GD&T) | HW #9 |
| | 19-Nov | | |
| | 19-Nov | | |
| 14 | 25-Nov | NX - Project | HW #10 |
| | 26-Nov | | |
| | 26-Nov | | |
| 15 | 2-Dec | NX - Project | - |
| | 3-Dec | | |
| | 3-Dec | | |

Note:    The above schedule is tentative and is subject to change if needed.

## *Important Dates*

NX Midterm:             Week 8 – 14 & 15 October 2019 during scheduled lab in SAL 127 and SAL 109.

NX Final:        During Finals week
                 Monday section: Friday December 13th 2019 from 2-4 p.m. in SAL 127.
                 Tuesday AM section: Thursday December 12th 2019 from 11am-1 p.m. in SAL 127.
                 Tuesday PM section: Thursday December 12th 2019 from 2-4 pm in SAL 127.

NX Group Project due:        Friday December 13th 2019 by 10 a.m.

Last day to drop class without mark of "W": Friday September 13th 2019.
Last day to drop class with mark of "W":     Friday November 15th 2019.