Course Description:

This course instills knowledge of Parametric Solid Modeling through the use of industry standard processes and programs. We will use Siemens NX 12 as the software platform. Most work required will be computer based. Projects can be collaborative and turned in collectively.

Course Outcomes:

The student will be able to
1. Use basic and advanced features of current CAD software.
2. Understand how CAD technology can be leveraged in the design process
3. Design a part or assembly of parts using Computer-Aided Design software.
4. Use parametric modeling techniques to reflect engineering requirements.
5. Apply top-down design principles to model a design.
6. Use motion and interference checking to ensure that parts will not interfere throughout their complete range of motion.
7. Use CAD software collaboratively when designing on a team.
8. Make appropriate selection of CAD functionality to use as tools in the design process.
9. Communicate effectively the geometry and intent of design features.

Instructor:

PROF Michael Gentry

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Office hours MW 3:45-5:00 T R 12:30-1:30 by appointment
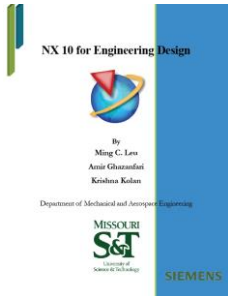
Text Book:

NX 12 for designers **Prof. Sham Tickoo**, Purdue University

Additional References

NX 12 Tutorial: Sketching, Feature Modeling, Assemblies, Drawings, Sheet Metal, and Simulation basics

`NX 12 for Engineering Design Ming C. Leu`

Procedure:

The course will consist of 2 lab periods per week. Each chapter consists of one or more tutorials which will emphasize a topic. At the end of each chapter there are one or more exercises that will need to be completed and turned in. Each chapter has a due date for completion of the homework. Late homework will be accepted up to one week late for a reduction in grade. There will be periodic lectures and discussions of topics but the majority of the time will be tutorials using the textbook. This is a computer aided design course and as such the best way to learn it is to use the software. Collaboration or working in groups is encouraged although the homework should be the students own work. Project work can be a group effort. Project ideas will be required to be approved by the instructor.

There is a home version of the software but the computer requirements for the software are significant. TRCC does not support or recommend students purchase the home version. Addition time for the class work can be done during other CAD courses. Class times will be made available.

Instructor Assistance:

Seeking help from the instructor outside of class is encouraged if you are having difficulty understanding course material. Feel free to Email/call for an appointment during office hours.

Course Work Portfolio:

The course work portfolio is a collection of copies of all work performed in the class. The portfolio should be broken into the following sections: (1) homework, (2) project. All students are required to maintain an online learning portfolio in Digication that uses the college template. Through this electronic tool students will have the opportunity to monitor their own growth in college-wide learning. The student will keep his/her learning portfolio and may continue to use the Digication account after graduation. A Three Rivers General Education Assessment Team will select and review random works to improve the college experience for all. Student work reviewed for assessment purposes will not include names and all student work will remain private and anonymous for college improvement purposes. Students will have the ability to integrate learning from the classroom, college, and life in general, which will provide additional learning opportunities. If desired, students will have the option to create multiple portfolios.

Grading Policy:

Several projects will be required during the semester. The due dates of the projects are noted in the Lecture Schedule. Final grades will be based on a quality and complexity of projects.

Projects	50%
Homework	30%
Attendance and Participation	20%

Course outline Rev1

	Subject	Chapter	Due date for exercises
Week 1	Introduction to NX 11 Drawing Sketches for Solid Models	1,2	9/27
Week 2	Adding Geometric and Dimensional Constraints to Sketches	3	9/27
Week 3	Editing, Extruding, and Revolving Sketches	4	10/4
Week 4	Working with Datum Planes, Coordinates Systems, and Datum Axes	5 Project 1 proposal due	10/11
Week5,6,	Modeling Tools 1	6 Project 1 Due	10/18 10/25
Week 7, 8	Modeling tools 2	7 Project 2 proposal due	11/1
Week 9	Assembly Modeling-I	8	11/8
Week 10	Assembly Modeling-II	9	11/15
Week 11	Generating, Editing, and Dimensioning the Drawing Views	12	11/27
Week12	Synchronous Modeling	13 Final project proposal due.	Possible project
Week13	GD&T	16	Possible project
Week 14	Project		
Week 15	Project		
		Final project Due	Dec13
	Project 1,2 may be combined. Final project may be a culmination.		

Project 1,2 may be combined. Final project may be a culmination. Intent is that project will be several parts combined into an assembly. The assembly then needs to be animated or stress analysed.