

CAD 250-251
3D Parametric Modeling
2016 Fall Syllabus
Prof. Michael Gentry

Course Purpose: The course uses Computer Aided Drafting (CAD) software to create technical drawing of real world design problems. These skills will then be fully synthesized into the world of parametric solid modeling with the use of Autodesk Inventor Professional ® This program will allow students to develop various engineering skills as they create the increasingly detailed illustrations used in industry. Drawings of assemblies and exploded views as well as changing the properties of materials for stress analysis comparisons will be explored.

Through final projects students can explore the fields of Computer Aided Manufacturing (CAM), Rapid Prototyping, Parametric Modeling, Stress analysis, simulation, sheetmetal or Geometric Dimensional and Tolerancing.

Instructor:

PROF Michael Gentry

Room C-154 ph: 215-9728
Email mgentry@trcc.comnet.edu
cell 860 608 3223 home email
gentrme@comcast.net
Office Hours MW 3-4 TTH 1-2
By appoinment

Class Hours:

Lecture: T TH 2-2:30 D115
Lab: 2:31-4:10 D115

Textbook:

Autodesk Inventor 2016 Essentials Plus
By Banach and Jones
SDC Publications

There are also numerous excellent resources available online on various subjects related to Autodesk Inventor.

Grading:

Lecture/Lab consists of 11 weekly assignments each week weighted equally 40%
Projects – Assembly Model 2 @ 25% each
Attendance participation 10%

Procedure:

The course will consist of 2 lab periods per week. 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.

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.

Academic Integrity:

Academic integrity is essential to a useful education. Failure to act with academic integrity severely limits a person's ability to success in the classroom and beyond. Furthermore, academic dishonesty erodes the legitimacy of every degree awarded by the College. In this class and in the course of your academic career, present only your own best work; clearly document the sources of the material you use from others; and act at all times with honor.

Attendance:

Attendance will be taken and will be report to the administration. Recent changes in scholarship requirements have stated that not attending class may impact financial aid. THIS IS A RECENT CHANGE IN TRCC AND STATE AND FEDERAL REQUIREMENTS. CONTACT ME IF YOU ARE GOING TO MISS A CLASS.

Grading Policy:

Final grades will be based on a normal distribution of all students taking the course based on the following weighting.

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| Projects | 40% |
| Homework | 40% |
| Attendance and Participation | 20% |

Withdrawal:

A student who finds it necessary to discontinue a course must complete a "Withdrawal Request Form" available in the Registrar's office within the time limits of the semester calendar. Students who do not withdraw, but stop attending will be assigned an "FU" which may impact their financial aid status. The last day to withdraw from classes is per the academic calendar on the school website.

Disabilities Statement:

If you have a question regarding a disability that may affect your progress in this course, please contact one of the college's Disability Service Providers as soon as possible. Chris Scarborough (215-9289) generally works with students who have learning disabilities or attention deficit disorder. Kathleen Gray (215-9248) generally works with students who have physical, visual, hearing, medical, mobility, and psychiatric disabilities. Matt Liscum (215-9265) also works with students who have disabilities.

If you will need accommodations for this class, you must contact the Disabilities Counseling Services. To avoid any delay in the receipt of accommodations, you should contact the counselor as soon as possible. *The instructor cannot provide accommodations until an accommodation letter from the Disabilities Counselor is received.*

Course Content:

| DATE | CONTENT | ASSIGNED READING |
|-------------|----------------|-------------------------|
|-------------|----------------|-------------------------|

On the last scheduled class of each chapter the Applying your skills exercises from the chapter are due. I suggest you also do the Checking your skills exercise.

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| Wk 1 8/29 | Course Introduction Starting Inventor Inventor Menu Structure Inventor Fundamentals | Introduction Chap.1 |
| 8/31 | Constraints Parametric Sketching Dimensioning a Sketch | Chap. 2 Chap. 2 |
| 9/5 9/7 | No Class Labor Day Creating and Editing Sketched Features Features - Sketch Planes Features-Extrusions | Chap. 3 Chap. 3 |
| 9/12 9-14 | Features- Sketch Planes Features - Revolutions | Chap. 3 |
| 9-19 | Chapter 4 – Creating Placed Features Placed Features | Chap. 4 |
| 9-24 9-26 | Work Planes Work Axes Work Points | Chap. 4 |
| 10/3 10/5 | Patterns Rectangular/Circular/Path | Chap. 4 |
| 10/10 10/12 | No Class Columbus Day Chapter 5 – Creating and Editing Drawing Views Drawing Views | Chap. 5 |
| 10/17 10/19 | Editing Drawing Views | Chap. 5 |
| 10/24 | Chapter 6 – Creating and Documenting Assemblies Creating Assemblies Top-Down Assemblies | Chap. 6 |
| 10/26 | Bottom-Up Assemblies Combination Assemblies | Chap. 6 |

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| 10/31 | Assembly Constraints Subassemblies Documenting Assemblies | Chap. 6 Chap. 6 |
| 11/7 | Chapter 7 – Advanced Modeling Techniques Advanced Sketching and Constraining Advanced Part Modeling | Chap. 7 Chap. 7 |
| 11/9 11/14 11/16 | Advanced part modeling Project Definitions Due Projects | Chap 7 |
| 11/21 11-23 | Projects THANKSGIVING BREAK NO CLASSES | |
| 11/28 11/30 | Final Project 1 Due | |
| 12/5 12/7 | Final Project | |
| 12/12 | Final Project | |
| 12/19 | Final Project 2 due | |

Content material subject to change at the discretion of the instructor.