Casper College Course Syllabus

Course Number and Title: ENTK 2625-01 Mechanical Drafting/Design II

Semester and Year: Spring 2016

Lecture Hours: 2  Lab Hours: 4  Credit Hours: 4

Class Time: 12:30p.m.-3:15p.m.  Days: Tuesday and Thursday  Room: GW 107

Instructor's Name: Paul Brutsman

Instructor's Contact Information: Office GW 116I
Phone 268-2529 w/voice mail
Email pbrutsman@caspercollege.edu

Office Hours: Monday 4:00 p.m.-6:00 p.m.
Tuesday 8:00 a.m.-9:00 a.m.
Wednesday 4:00 p.m.-6:00 p.m.

Course Description: This is an advanced mechanical design course focusing on design and marketing tools used with solid modeling of parts and assemblies. The students learn to integrate weldments, fasteners, sheet metal parts and web based design tools into assemblies. These tools aid the designer during the product development phase of a project.

Statement of Prerequisites: ENTK 1650 or instructor approval

Institutional Outcomes:

☐ Demonstrate effective oral and written communication
☐ Use the scientific method
☒ Solve problems using critical thinking and creativity
☐ Demonstrate knowledge of diverse cultures and historical perspectives
☐ Appreciate aesthetic and creative activities
☐ Use appropriate technology and information to conduct research
☐ Describe the value of personal, civic, and social responsibilities
☐ Use quantitative analytical skills to evaluate and process numerical data

Program Goals: The goal of the Drafting & Design department is for students to obtain an education and practical skill development that promotes lifelong learning and insures student success in a career in Drafting & Design or an allied field within Engineering Technology.

Course Goals: To educate the student in basic solid modeling of assemblies using SolidWorks. The student will create assemblies using both bottom-up and top-down design techniques. Weldments, fasteners, sheetmetal parts and web based design tools will be integrated into the assemblies. Create animation and photorealistic rendering of parts and assemblies to communicate product design. Locate and employ design collaboration tools over the Internet.

Course Objectives: To educate the student in design and marketing tools used with 3D solid model
Methodology: Practical application of theoretical concepts is emphasized in the classroom and lab. Concepts discussed in lecture will be demonstrated and then applied by the students.

Evaluation Criteria: The course grade will be calculated as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weightage</th>
<th>Grade Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework and Quizzes</td>
<td>50%</td>
<td>A= 90-100%</td>
</tr>
<tr>
<td>Tests</td>
<td>20%</td>
<td>B= 89-80%</td>
</tr>
<tr>
<td>Final Project</td>
<td>20%</td>
<td>C= 70-79%</td>
</tr>
<tr>
<td>Portfolio</td>
<td>10%</td>
<td>D= 60-69%</td>
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<tr>
<td></td>
<td></td>
<td>F= &lt;59%</td>
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</tbody>
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Required Text, Readings and Materials: Machinery’s Handbook 29th Edition
References: Engineering Drawing and Design, David A. Madsen. SolidWorks.com, YouTube and other web sites.

Class Policies: Last Date to Change to Audit Status or to Withdraw with a W Grade:
- Refer to Casper College Catalog
- Please do not work on class assignments during lecture. It is important that you pay attention and take notes of the lecture. The assignments will require material covered in the lecture.
- Late assignments will not receive full credit. A letter grade will be deducted for each day the assignment is late. After two class periods the assignment will not be accepted.
- Cell phone use in the classroom is reserved for emergency purposes only. Please set all phones to vibrate and excuse yourself from the classroom if use is necessary.
- No ipod or other electronic devices shall be used during lecture
- Computers are to be used for classroom work only. No games, Facebook, myspace, etc.
- Attendance is very important. Students missing 5 classes will be given the choice of taking an “F” for the class, withdrawing from class or changing to an audit and continue to participate.
- Required Supplies: Pen/pencil, USB storage drive, notebook.
- Portfolio: PowerPoint to include images of assignments completed during the semester with brief explanation of problem solving, design intent, strategies of graphic communication and techniques used to complete the assignment. The student will receive a grade on this portfolio as described in evaluation criteria.
- Please wipe down the desk and keyboard with sanitizing wipes provided at the beginning or end of class.
- Pizza Party at the end of the semester

Final Project
This is a project that is chosen by the student and approved by the instructor. This project should be something of interest to the student. You should be working on the project the entire semester. Tools in the design studio are available for manufacturing of the final project if applicable. Students are encouraged to use the 3D printer, laser engraver, CNC plasma cutter, tubing bender to manufacturer their final project. Some projects are beyond our abilities to manufacture and that is okay. You will present this project at the end of the semester to the class. PowerPoint is the preferred software for this presentation.
Portfolio
This is an electronic summary of the class assignments. This is something you could show to a potential employer who is interested in knowing what types of projects you did in class. PowerPoint is the preferred software for this portfolio.

Fabrication Lab Safety Rules
- You are required to get instructors permission before any use of the shop and equipment
- Safety glasses must be worn in the Robotics Fabrication Lab shop at all times. There are dispensers located at the entrance door. Be sure to return glasses after use.
- Safety shield must be worn when grinding. No exceptions.
- If you are welding, safety curtains must be positioned properly
- All general shop safety rules must be followed. If you are unsure, please ask the instructor for guidance

Design Studio Safety Rules
- You are required to get instructors permission before any use of the shop and equipment
- Safety glasses must be worn in the Design Studio if any equipment is running. Be sure to return glasses after use.
- All general shop safety rules must be followed. If you are unsure, please ask the instructor for guidance

Student Rights and Responsibilities: Please refer to Casper College Student Conduct and Judicial Code for information concerning your rights and responsibilities as a Casper College Student.

Chain of Command: If you have any problems with this class, you should first contact the instructor in order to solve the problem. If you are not satisfied with the solution offered by the instructor, you should then take your problem through the appropriate chain of command starting with the Department Head, the Dean/Program Director and lastly the Vice President for Academic Affairs.

Academic Dishonesty - (Cheating & Plagiarism) Casper College demands intellectual honesty. Proven plagiarism or any form of dishonesty associated with the academic process can result in the offender failing the course in which the offense was committed or expulsion from school. See the Casper College Student Code of Conduct for more information on this topic.

Official Means of Communication: Casper College faculty and staff will employ the student’s assigned Casper College email account as a primary method of communication. Students are responsible to check their account regularly.

ADA Accommodations Policy: If you need academic accommodations because of a disability, please inform me as soon as possible. See me privately after class, or during my office hours. To request academic accommodations, students must first consult with the college’s Disability Services Counselor located in the Gateway Building, Room 344, (307) 268-2557, bheuer@caspercollege.edu. The Disability Services Counselor is responsible for reviewing documentation provided by students requesting accommodations, determining eligibility for accommodations, and helping students request and use appropriate accommodations.
Course Outline – Schedule subject to change!

Week 1
SolidWorks user interface (UI)
  SW Explorer
  Design Library – Add class directory
  Search
  RealView
  Document Recovery
SolidWorks Tutorials
Part Templates
Assembly Templates
Drawing Templates

Sheetmetal
Final Project/Portfolio

Week 2
Sheetmetal
Final Project/Portfolio

Week 3
Sheetmetal
Final Project/Portfolio

Week 4
Sheetmetal
Edrawings

Week 5
Sheetmetal
Final Project/Portfolio

Week 6
Weldments
Ryerson and Jorgensen Handbook
Final Project/Portfolio

Week 7
Weldments
Final Project/Portfolio
Pizza Party
Week 8
  Weldments
  Final Project/Portfolio

Week 9
  Weldments
  Photoview 360
  Final Project/Portfolio

Week 10
  Final Project/Portfolio

Week 11
  Equations
  Final Project/Portfolio

Week 12
  Surfacing
  Final Project/Portfolio

Week 13
  Surfacing
  Final Project/Portfolio

Week 14
  GD&T
  Final Project/Portfolio

Week 15
  GD&T
  Final Project/Portfolio

Week 16
  Final Project/Portfolio

SCHEDULE SUBJECT TO CHANGE