NEW RIVER COMMUNITY COLLEGE
DUBLIN, VIRGINIA

COURSE PLAN

Course Number and Title: CAD 241 Solid Modeling I

Prepared by: CAD Faculty Member Fall, 2014
(Instructor) (Date)

Approved by: Fall, 2014
(Dean) (Date)

I. Course Description

Focuses on teaching students the design of parts by parametric solid modeling. Topics covered include, but are not limited to, sketch profiles; geometric and dimensional constraints; 3D features; model generation by extrusion, revolution, and sweep; and the creation of 2D drawing views that include sections, details and auxiliary. Lecture 2 hours, Laboratory 2 hours. Total 4 hours per week. (3 credits)

II. Introduction

Uses Autodesk Inventor software to teach advance applications of Solid Modeling using Computer Aided Drafting and Design. Explore components of a workstation environment, intermediate 2D and 3D commands and drawings, display and editing commands; printing and plotting techniques.

III. Student Learning Outcomes

The student will give evidence that he/she has developed a basic understanding and skills in drawing using Autodesk Inventor by demonstrating:

1. Advanced 3D Solid Modeling techniques.
2. Utilizing user interface, commands, sketching, profiling, constraining, and dimensioning.
3. How to view, extrude, revolve and edit mechanical parts.
4. Knowledge and usage of sketch planes, Boolean operations, fillets, chamfers, holes and arrays.
5. Intermediate mechanical skills in 3D solid modeling and editing.
6. Utilization of drawing views and intermediate annotations.
7. How to establish work axis, work planes, work points, 3D path, and lofting.
8. Intermediate mechanical dimensioning, constraining and sketching techniques.
IV. Instructional Methods
   - Lecture
   - Chapter Outlines(by Students)
   - In Class Exercises
   - Video Tutorials
   - Online Video/Youtube Tutorials/Instruction
   - Project Based Instruction

V. Instructional Materials

TEXT

Inventor 2015 Essentials Plus
By: Banach & Jones
Publisher: SDC

BOOK

Materials and equipment to be used by instructor: video tapes, overhead slides, PowerPoint presentations, and chapter exercises, CD’s, marker boards, on-line tutorials, computer and a variety of other multimedia devices.

➤ Materials, equipment and things to be provided by the student:
   a. Portable USB Hard Drive
   c. Sketch Pad
   d. Note Book
   e. Engineering Grid Paper – 5 grids per inch (Staples or Office Max)
   f. WORK & Willingness to learn

VI. Course Content

1. Beginning / Intermediate Inventor 2013 commands Review
3. Creating, Constraining and Dimensioning 3D Models
4. Creating Full and Exploded assembly drawings
6. Creating threads
8. Applying Geometric Tolerancing and Dimensioning to 3D models
9. Applying materials
10. Lighting Techniques
11. Presentation of models
   - Exporting to IGES / Step Files
   - Importing models and editing / manipulating them in Showcase
12. Learning the Design Process

VII. Evaluation

The numerical range for grades will be:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
<th>Component</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>91 - 100</td>
<td>Drawings/Assignments</td>
<td>65%</td>
</tr>
<tr>
<td>B</td>
<td>81 - 90</td>
<td>Tests/Quizzes</td>
<td>25%</td>
</tr>
<tr>
<td>C</td>
<td>71 - 80</td>
<td>Attendance/Class part.</td>
<td>10% (Final Grade)</td>
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<tr>
<td>D</td>
<td>61 - 70</td>
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<tr>
<td>F</td>
<td>60 or below</td>
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VIII. Attendance

Regular attendance at classes is required. When absence from a class becomes necessary, it is the responsibility of the student to inform the instructor prior to the absence whenever possible. The student is responsible for the subsequent completion of all study missed during an absence. Any instruction missed and not subsequently completed will necessarily affect the grade of the student regardless of the reason for the absence.

IX. Cheating Policy

Students in the CAD/Architecture & Game Technology program will be held to the highest and strictest level of ethical educational conduct. Suspicion of Cheating &/or Plagiarism will result in an Incomplete “I” grade for that project, test or homework assignment. Upon review if it is determined that the student was in violation of the schools cheating policy, he or she will receive the Grade of “F” which will be calculated as a ZERO “0” averaged in with other grades for the project automatically, may receive an “F” for the course and will have to repeat the course in order to graduate. If the severity of the offense is enough as to warrant it, the student may be kicked out of the CAD program all together.

Cheating / Plagiarism may be defined as but not limited to the following for this curriculum.

- Turning in anything you did not do 100% yourself if it is an “individual” non-team project.
- Copying ANY part of someone else’s work
- Making the effort to copy or steal someone else’s work
• Taking someone else’s CAD electronic file and manipulating it to give the appearance that it is your own work.

X. **Withdrawal Policy**

**Student Initiated Withdrawal Policy**

A student may drop or withdraw from a class without academic penalty during the first 60 percent of a session. For purposes of enrollment reporting, the following procedures apply:

a. If a student withdraws from a class prior to the termination of the add/drop period for the session, the student will be removed from the class roll and no grade will be awarded.

b. After the add/drop period, but prior to completion of 60 percent of a session, a student who withdraws from a class will be assigned a grade of “W.” A grade of “W” implies that the student was making satisfactory progress in the class at the time of withdrawal, that the withdrawal was officially made before the deadline published in the college calendar, or that the student was administratively transferred to a different program.

c. After that time, if a student withdraws from a class, a grade of “F” or “U” will be assigned. Exceptions to this policy may be made under documented mitigating circumstances if the student was passing the course at the last date of attendance.

A retroactive grade of “W” may be awarded only if the student would have been eligible under the previously stated policy to receive a “W” on the last date of class attendance. The last date of attendance for a distance education course will be the last date that work was submitted.

Late withdrawal appeals will be reviewed and a decision made by the Director of Student Services.

**No-Show Policy**

A student must either attend face-to-face courses or demonstrate participation in distance learning courses by the last date to drop for a refund. A student who does not meet this deadline will be reported to the Admissions and Records Office and will be withdrawn as a no-show student. No refund will be applicable, and the student will not be allowed to attend/participate in the class or submit assignments. Failure to attend or participate in a course will adversely impact a student’s financial aid award.

**Instructor Initiated Withdrawal**

A student who adds a class or registers after the first day of class is counted absent from all class meetings missed. Each instructor is responsible for keeping a record of student attendance (face-to-face classes) or performance/participation (DE classes) in each class throughout the semester.
When a student’s absences equal twice the number of weekly meetings of a class (equivalent amount of time for summer session), the student may be dropped for unsatisfactory attendance in the class by the instructor.

Since attendance is not a valid measurement for Distance Education (DE) courses, a student may be withdrawn due to non-performance. A student should refer to his/her DE course plan for the instructor’s policy.

In accordance with the No-Show Policy, a student who has not attended class or requested/accessed distance learning materials by the last day to drop the class and receive a refund must be withdrawn by the instructor during the following week. No refund will be applicable.

When an instructor withdraws a student for unsatisfactory attendance (face-to-face class) or non-performance (DE class), the last date of attendance/participation will be documented. Withdrawal must be completed within five days of a student’s meeting the withdrawal criteria. A grade of “W” will be recorded during the first sixty percent (60%) period of a course. A student withdrawn after the sixty percent (60%) period will receive a grade of “F” or “U” except under documented mitigating circumstances when a letter of appeal has been submitted by the student. A copy of this documentation must be placed in the student’s academic file.

The student will be notified of the withdrawal by the Admissions and Records Office. An appeal of reinstatement into the class may be approved only by the instructor.

XI. **Disability and Diversity Statements**

If you are a student with a documented disability who will require accommodation in this course, please register with the Disability Services Office located in the Counseling Center for assistance in developing a plan to address your academic needs.

The NRCC community values the pluralistic nature of our society. We recognize diversity including, but not limited to, race ethnicity, religion, culture, social class, age, gender, sexual orientation and physical or mental capability. We respect the variety of ideas, experiences and practices that such diversity entails. It is our commitment to ensure equal opportunity and to sustain a climate of civility for all who work or study at NRCC or who otherwise participate in the life of the college.