**I. COURSE TITLE:** Introduction to 3D AutoCAD

**COURSE NUMBER:**  2231 **CATALOG PREFIX:** ENDS

**II. PREREQUISITE(S):** ENDS 1140 orENDS 2230

**III. CREDIT HOURS:** 3 **LECTURE HOURS:** 3

**LABORATORY HOURS:** 0 **OBSERVATION HOURS:** 0

**IV. COURSE DESCRIPTION:**

An introduction into 3D modeling, this course continues to build on the student’s 2D knowledge. This course will take the student from the very basic introduction to AutoDesk AutoCAD 3D all the way through to the creation of realistic looking 3D models and renderings. The student will develop the ability to create 3D models and presentations suitable to sell the design or concept to others.

**V. GRADING**

Grading will follow the policy in the catalog. Typically, grading will be based on

the following point system:

1000 – 900 = A

899 – 800 = B

799 – 700 = C

699 – 600 = D

599 – 0 = F

**VI. ADOPTED TEXT(S):**

Up and Running with AutoCAD 2017

2D and 3D Drawing and Modeling

Gindis, Elliot

Academic Press

ISBN 978-0-443-299-71-1

**VII. COURSE OBJECTIVES:**

1. The student will develop a basic understanding of 3D theory, including the ability to navigate inside and outside the 3D environment.
2. The student will gain more understanding of the ANSI Y14.5M-1982 graphics standards.
3. The student will develop skills necessary to manipulate objects within the 3D environment.
4. The student will develop the ability to utilize the additive and subtractive interactions with 3D objects.
5. The student will develop the skills necessary for solid modeling.
6. The student will develop skills in the use of surfaces and meshes.
7. The student will develop skills necessary to slice and section 3D models.
8. The student will develop skills necessary to produce 2D layouts of 3D models.
9. The student will develop skills necessary to change the UCS to make various shapes and surfaces regardless of orientation.
10. The student will develop skills for presentations of 3D models that include lighting, shading, rendering, and animations.
11. The student will work on individual and group (team) projects to enhance their skills necessary for employment.

**VIII. COURSE METHODOLOGY:**

A mixture of lecture, demonstration, and hands-on experience completing independent and group assignments and projects, with in-class and home assignments, quizzes, tests. Attendance is recommended.

**IX. COURSE OUTLINE:**

|  |  |  |
| --- | --- | --- |
| Week # | Topic | Learning objective |
| 1 | 3D basics | 1,2 |
| 2 | 3D object manipulation | 1,2,3 |
| 3 | Boolean operations and primitives | 1,2,3,4 |
| 4 | Solid modeling  TEST 1 | 1,2,3,4,5 |
| 5 | Advanced solids, faces, and edges | 1,2,6 |
| 6 | Surfaces and meshes | 1,2,6,7 |
| 7 | Slicing, sectioning, layouts and Vports | 1,2,6,7 |
| 8 | Advanced UCS, views, text, and dimensioning in 3D  TEST 2 | 1,2,6,7,8,9 |
| 9 | Dview, camera, walk and fly, path animation | 1,2,10 |
| 10 | Lighting and rendering  TEST 3 | 1,2,10 |
| 11 | Project 1 | 1,2,3,4,5,6,7,8,9,10,11 |
| 12 | Project 1 | 1,2,3,4,5,6,7,8,9,10,11 |
| 13 | Project 2-group | 1,2,3,4,5,6,7,8,9,10,11 |
| 14 | Project 2-group | 1,2,3,4,5,6,7,8,9,10,11 |
| 15 | Project 3 | 1,2,3,4,5,6,7,8,9,10,11 |
| 16 | Final Exam, first regular meeting day of week  Monday for M-W, Tuesday for T-TH | 1,2,3,4,5,6,7,8,9,10,11 |

**X. OTHER REQUIRED TEXTS, SOFTWARE, AND MATERIALS:**

Students on their personal computer (laptop as required by program), are required to download the “Educational” version of CAD from the AutoDesk website, using their school email address to register and activate the free version. Other materials may be furnished for group project work by the instructor.

**XI. EVALUATION:**

Assignments will be evaluated according to instructor directives and project instructions. The grade will be determined by periodic examination, comprehensive final examination, homework, and quizzes.

Typical weight assigned:

|  |  |  |  |
| --- | --- | --- | --- |
| Assessment method | % of Final Grade | Total Points | Grade scale based on points earned |
| Assignments/Projects | 40 | 400 | A= 900+ |
| Quizzes | 10 | 100 | B= 800-899 |
| Tests | 30 | 300 | C= 700-799 |
| Comp. Final Exam | 20 | 200 | D= 600-699 |
|  | 100% | 1000 points | F= 0-599 |

**XII. SPECIFIC MANAGEMENT REQUIREMENTS:**

All assignments and tests must be turned in on time (no late work will be accepted). Students must work on their own time to complete the assignments. Exercises are assigned for the student to complete during CAD course hours but may require outside work. Some exercises require working in a group to be completed outside of normal class hours. Examinations will include written and drawing components.

**XIII. OTHER INFORMATION:**

**FERPA:** Students need to understand that your work will be seen by others. Others will see your work when being distributed, during group project work, and if it is chosen for demonstration purposes. Students also need to know that there is a strong possibility that your work may be submitted to other entities for the purpose of plagiarism checks.

**DISABILITIES:** Students with disabilities may contact the Disabilities Service Office, Central Campus, at 800-628-7722 or 937-393-3431.