**1. COURSE TITLE:** Advanced Concepts in 2D AutoCAD

**2.** **CATALOG – PREFIX/COURSE NUMBER/COURSE SECTION\*:** ENDS 2230

**3. PREREQUISITE(S):** ENDS 1140

**4.** **COURSE TIME/LOCATION/MODALITY: (*Course Syllabus – Individual Instructor Specific*)**

**5. CREDIT HOURS:** 3 **LECTURE HOURS:** 3

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

**6. FACULTY CONTACT INFORMATION: *(Course Syllabus – Individual Instructor Specific)***

**7. COURSE DESCRIPTION: \***

An intermediate course which dives into advanced concepts in computer assisted design techniques. The student will learn how to make the software work for them while gaining experience in solving drafting problems utilizing an interactive CAD system. Students will extend their CAD competency by solving sophisticated drafting problems utilizing an interactive CAD system, applications, course description and lecture with an opportunity to test for third party credentials via Autodesk.

**8. Learning Outcomes: \***

1. The student will learn to work on CAD projects in a group and individual setting utilizing drafting standards and templates common to industry standards.
2. The student will learn how and when to utilize advanced line concepts such as polyline, spline, ray, and mline.
3. The student will learn how and when to utilize advanced layer tools such as script files, layer state manager, layer filters, and the need to automatic the layering process.
4. The student will learn how to dimension using various tabs, tolerances, and constraints.
5. The student will learn how to customize the CAD working environment to meet their needs.
6. The student will learn how to manipulate file management and advanced design tools such as tool palettes, and system variables.
7. The student will learn how to import and export data from other file types and the importance of data acquisition.
8. The student will learn how to utilize Xrefs and attributes, their importance to updating designs and producing BOM and inventory counts.
9. The student will learn how to set and modify CTB files and edit line weights.
10. The student will learn how and when isometric perspectives are appropriate.
11. The student will learn how to create a LISP routine and other advanced customizable tools

**9. ADOPTED TEXT(S): \***

Up and Running with AutoCAD 2023

 2D and 3D Drawing and Modeling

Gindis, Elliot and Kaebisch, Robert C.

Academic Press

 ISBN 978-0-323-99665-5

 9a. Supplemental Text-N/A

**10. OTHER REQUIRED MATERIALS: (SEE APPENDIX C FOR TECHNOLOGY REQUEST FORM.)\*\***

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.

**11. 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

1. – 0 = F

**12. GRADING PROCEDURE OR ASSESSMENTS: (*Course Syllabus – Individual Instructor Specific)***

Students that have passed the AutoDesk AutoCAD 2023 Certified Professional

Exam and received certification can request Prior Learning Credit for this class.

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 |

**13. 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 highly recommended.

**14. COURSE OUTLINE:**

|  |  |  |
| --- | --- | --- |
| Week # | Topic | Learning Outcomes |
| 1 | Review of basic CAD | Review of ENDS 1140 |
| 2 | Advanced line work | 2 |
| 3 | Advanced layering | 3 |
| 4 | Advanced dimensioning | 4 |
| 5 | Options, shortcuts, and express tools | 5 |
| 6 | Advanced design and file management tools | 5,6 |
| 7 | Importing and exporting data | 5,6,7 |
| 8 | External references (Xrefs)Project work-1 | 1,2,3,4,5,6,7,8 |
| 9 | AttributesProject work-1 | 1,2,3,4,5,6,7,8 |
| 10 | Advanced output and pen settingsProject work-1 | 1,2,3,4,5,6,7,8,9 |
| 11 | Isometric drawingsGroup project work-2 | 1,2,3,4,5,6,7,8,9,10 |
| 12 | AutoLISP basics and advanced customization toolsGroup project work-2 | 1,2,3,4,5,6,7,8,9,10,11 |
| 13 | Custom line types and hatch patternsGroup project work-2 | 1,2,3,4,5,6,7,8,9,10,11 |
| 14 | Project work-3 | 1,2,3,4,5,6,7,8,9,10,11 |
| 15 | Project work-3 | 1,2,3,4,5,6,7,8,9,10,11 |
| 16 | Final Exam, first regular meeting day of weekMonday for M-W, Tuesday for T-TH | 1,2,3,4,5,6,7,8,9,10,11 |

**15. 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. Examinations will include written and drawing components.

**16. 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.

**17.** **ACCOMMODATIONS: \***

Students requesting accommodations may contact the Academic Affairs office administrative assistant, Barb Fleming, at bfleming@sscc.edu or 937-393-3431 X-2620.

Students seeking a religious accommodation for absences permitted under Ohio’s Testing Your Faith Act must provide the instructor and the Academic Affairs office with written notice of the specific dates for which the student requires an accommodation and must do so no later than fourteen (14) days after the first day of instruction or fourteen (14) days before the dates of absence, whichever comes first.  For more information about Religious Accommodations, see the full policy at <https://www.sscc.edu/services/accessibility-services.shtml#religious-accommodations>

or contact the Academic Affairs office administrative assistant, Barb Fleming, at bfleming@sscc.edu or 937-393-3431 X-2620.

**18. OTHER INFORMATION\*\*\*:**

**SYLLABUS TEMPLATE KEY**

**\*** Item cannot be altered from that which is included in the master syllabus approved by the Curriculum Committee.

**\*\*** Any alteration or addition must be approved by the Curriculum Committee

**\*\*\*** Item should begin with language as approved in the master syllabus but may be added to at the discretion of the faculty member.