# COURSE OUTLINE: CAD100 - INTRO COMP/AUTOCAD

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Approved: Martha Irwin - Dean

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| **Course Code: Title** | CAD100: INTRODUCTION TO COMPUTERS AND AUTOCAD |
| **Program Number: Name** | 4080: CIVIL ENG TECHNICIAN<br>4098: CONSTRUCTION TECH. |
| **Department:** | CIVIL/CONSTRUCTION |
| **Academic Year:** | 2025-2026 |
| **Course Description:** | This course is intended to introduce to the student to the use of AutoCAD software in the preparation, editing and plotting of engineering drawings. The student will also be able to setup CAD drawings using standards for layers, text, and line weight. The student will become familiar with basic drawing and editing procedures, as well as file management and organization. |
| **Total Credits:** | 4 |
| **Hours/Week:** | 4 |
| **Total Hours:** | 56 |
| **Prerequisites:** | There are no pre-requisites for this course. |
| **Corequisites:** | There are no co-requisites for this course. |
| **Substitutes:** | CAD120, ELN210 |
| **This course is a pre-requisite for:** | CAD222 |
| **Vocational Learning Outcomes (VLO's) addressed in this course:**<br>**Please refer to program web page for a complete listing of program outcomes where applicable.** | **4080 - CIVIL ENG TECHNICIAN**<br>VLO 6 collect, process and interpret technical data to produce written and graphical project-related documents.<br>VLO 7 use industry-specific electronic and digital technologies to support civil engineering projects.<br>VLO 8 participate in the design and modeling phase of civil engineering projects by applying engineering concepts, basic technical mathematics and principles of science to the review and production of project plans.<br><br>**4098 - CONSTRUCTION TECH.**<br>VLO 6 Communicate technical information to a variety of clients, supervisors and tradespersons to participate in the successful completion of construction projects.<br>VLO 7 Identify and use industry-specific technologies to support construction projects.<br>VLO 8 Solve on-site trade-related construction problems using mathematical equations and geometric concepts.<br>VLO 10 Assist in the preparation of project estimates. |

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| **Essential Employability Skills (EES) addressed in this course:** | EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.<br>EES 5 Use a variety of thinking skills to anticipate and solve problems.<br>EES 6 Locate, select, organize, and document information using appropriate technology and information systems.<br>EES 10 Manage the use of time and other resources to complete projects.<br>EES 11 Take responsibility for ones own actions, decisions, and consequences. |
| **Course Evaluation:** | Passing Grade: 50%, D<br><br>A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation. |
| **Other Course Evaluation & Assessment Requirements:** | Grade<br>Definition Grade Point Equivalent<br>A+ 90 - 100% 4.00<br>A 80 - 89%<br>B 70 - 79% 3.00<br>C 60 - 69% 2.00<br>D 50 - 59% 1.00<br>F (Fail)49% and below 0.00<br><br>CR (Credit) Credit for diploma requirements has been awarded.<br>S Satisfactory achievement in field /clinical placement or non-graded subject area.<br>U Unsatisfactory achievement in field/clinical placement or non-graded subject area.<br>X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.<br>NR Grade not reported to Registrar`s office.<br>W Student has withdrawn from the course without academic penalty.<br><br>Attendance<br>Students are only allowed to miss three classes without a documented explanation. One mark will be deducted from your overall grade for each undocumented explanation. The maximum deduction in overall grade is not to exceed 15%. Valid documented explanation include:<br>• Medical reason<br>• Family emergency<br>• Child care issue<br>• Transportation problems<br>• And any other reasonable explanation<br>The documented explanation has to be sent to the course professor by e-mail no later than three days from a missed class. A Doctor note, etc., is to be attached as a PDF file to your e-mail. |
| **Books and Required Resources:** | No Textbook Required |

**Course Outcomes and Learning Objectives:**

| Course Outcome 1 | Learning Objectives for Course Outcome 1 |
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| Upon successful completion, the student will be able to:<br>1. Collect, process and | 1.1 Select and use appropriate technologies to produce documents for civil engineering projects<br>1.2 use relevant information to construct models for civil engineering projects by using drawings |

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| interpret technical data to produce written and graphical project-related documents. | and computer-assisted technologies<br>1.3 Collect and organize project related information in a retrievable manner according to approved techniques.<br>1.4 Set up drawings using layers, linetypes, templates, text styles, and title blocks in accordance with drafting standards. |
| **Course Outcome 2** | **Learning Objectives for Course Outcome 2** |
| Upon successful completion, the student will be able to:<br>2.Use industry-specific electronic and digital technologies to support civil engineering projects. | 2.1 Select and use industry-specific electronic and digital technologies to design projects, produce plans and to solve project-related problems (e.g., Computer-aided Design (CAD), etc.<br>2.2 Prepare and organize layouts using viewports, plot styles, and paper space tools for PDF or hardcopy submission. |
| **Course Outcome 3** | **Learning Objectives for Course Outcome 3** |
| Upon successful completion, the student will be able to:<br>3. Participate in the design and modeling phase of civil engineering projects by applying engineering concepts, basic technical mathematics and principles of science to the review and production of project plans. | 3.1 Review the technical criteria used in the design, layout and construction of civil engineering projects.<br>3.2 Use the following AutoCAD commands/features in the interpretation and preparation of drawings.<br>-Create a New Drawing<br>-Drawing units<br>-Grid and Snap, Object snap<br>-Model and Layout Space<br>-Drawing Circle and Rectangle objects<br>-ERASE command<br>-Accessing `Help`<br>-Printing and plotting<br>-Layers and linetypes<br>-Assign colours and linetypes<br>-LTSCALE<br>-Editing commands Fillet and Chamfer<br>-Zoom and Pan functions<br>-Single line text<br>-Move, Copy and Array commands<br>-View resolution<br>-Limits<br>-Create a template drawing<br>-Polar tracking<br>-Center marks<br>-Changing Plot settings<br>-Use Polar Arrays<br>-Create arcs using ARC command<br>-Rotate command<br>-Use the MIRROR command<br>-Basic page setup<br>-Object snap override<br>-Running object snap<br>-Object snap tracking<br>-OFFSET command (Distance and Through)<br>-Use the TRIM and EXTEND commands |

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| | -STRETCH command<br>-Understand plot layouts<br>-Advanced single line text, character codes<br>-Use title blocks in layout space<br>-Create and use and edit MTEXT<br>-Use the spellcheck function<br>-Create a text style using style manager<br>-Modify object properties and use SCALE<br>-Create tables and fields<br>-Create a dimension style<br>-Apply linear and angular dimensions<br>-Apply radial and diameter dimensions<br>-Create a multi-leader style<br>-Use the HATCH command<br>-Understand `scale` between Model and Layout space<br>-Polygons and Donuts<br>-Using the FILL command<br>-Drawing straight and arc polyline segments<br>-Edit polyline objects with PEDIT<br>-Draw splines and path arrays<br>-Draw points and change point display (PDMODE)<br>-Discuss constraint parameters<br>-Distinguish between groups and blocks<br>-Create and insert blocks into a drawing<br>-Create and edit dynamic blocks<br>-Insert an external reference into a drawing<br>-Access content from the AutoCAD design center<br>-Define and extract attributes<br>-Use isometric snap<br>-Draw on the isometric planes<br>-Use the COPY and ELLIPSE and CHAMFER commands<br>-Use the VIEW command to save and restore views<br>-Align text with isometric planes<br>-Create a 3D wireframe model<br>-Understand and apply a user coordinate system<br>-Switch to and use the 3D basics workspace<br>-Create solid boxes and wedges<br>-Use Boolean operations to edit solids<br>-Perform basic rendering operations<br>-Use the `Viewcube`<br>-Create layouts with multiple views<br>-Draw polysolids<br>-Draw Cones, Pyramids and Toruses<br>-Slice and section solid objects<br>-Create mesh models<br>-Create solids from 2D objects<br>-Create a walk through a 3D landscape<br>-Create paper and PDF plots |

**Evaluation Process and Grading System:**

| Evaluation Type | Evaluation Weight |
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| Assignments and Quizzes | 60% |

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| | Final Exam | 20% |
| | Midterm Exam | 20% |
| **Date:** | July 31, 2025 | |
| **Addendum:** | Please refer to the course outline addendum on the Learning Management System for further information. | |