



## COURSE OUTLINE: GIS429 - CAD AND GIS

Prepared: Heath Bishop

Approved: Corey Meunier, Chair, Technology and Skilled Trades

<b>Course Code: Title</b>	GIS429: CAD AND GIS
<b>Program Number: Name</b>	4018: GIS-APPLICATION SPEC
<b>Department:</b>	GEOGRAPHIC INFORMATION SYSTEMS
<b>Semesters/Terms:</b>	18F
<b>Course Description:</b>	This course investigates the integration between AutoCAD and GIS software packages. The ability to convert data between these packages is essential in many GIS industries, and is therefore a focal point of this course. The students will be using real-world data to solve geo-spatial problems while also learning the intricacies of file conversion and compatibility. Students will gain experience creating spatial data within the AutoCAD and AutoCAD Map environments, and subsequently learn the skills necessary to successfully bring the data into other GIS software packages for further analysis.
<b>Total Credits:</b>	2
<b>Hours/Week:</b>	2
<b>Total Hours:</b>	30
<b>Prerequisites:</b>	There are no pre-requisites for this course.
<b>Corequisites:</b>	There are no co-requisites for this course.
<b>Vocational Learning Outcomes (VLO's) addressed in this course:</b>  Please refer to program web page for a complete listing of program outcomes where applicable.	<b>4018 - GIS-APPLICATION SPEC</b>  VLO 1 Understand the general concepts of spatial information and the current methodologies used to input, store, manipulate, and retrieve this type of data in a computer based environment;  VLO 2 Understand the typical data structures, algorithms, and computational problems that are encountered in various GIS technologies;  VLO 3 Be aware of the variety of sources of spatial data, such as surveying and remote sensing, that feed into a GIS, and the methods by which these data are realized in a GIS system;  VLO 4 Understand the ways in which GIS technologies can be applied within specific disciplines (see assumption above), and the advantages, changes in method, developmental problems, and restructuring that may result from the adoption of these technologies;  VLO 6 Be aware of the issues surrounding the communication of data extracted from a GIS to a variety of potential end users;
<b>Essential Employability Skills (EES) addressed in this course:</b>	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.  EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication.  EES 4 Apply a systematic approach to solve problems.  EES 5 Use a variety of thinking skills to anticipate and solve problems.  EES 6 Locate, select, organize, and document information using appropriate technology



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	and information systems.																				
	EES 7 Analyze, evaluate, and apply relevant information from a variety of sources.																				
	EES 10 Manage the use of time and other resources to complete projects.																				
	EES 11 Take responsibility for ones own actions, decisions, and consequences.																				
<b>Course Evaluation:</b>	Passing Grade: 50%, D																				
<b>Other Course Evaluation &amp; Assessment Requirements:</b>	<p>Grade</p> <p>Definition Grade Point Equivalent</p> <p>A+ 90 - 100% 4.00</p> <p>A 80 - 89% 4.00</p> <p>B 70 - 79% 3.00</p> <p>C 60 - 69% 2.00</p> <p>D 50 - 59% 1.00</p> <p>F (Fail) 49% and below 0.00</p> <p>CR (Credit) Credit for diploma requirements has been awarded.</p> <p>S Satisfactory achievement in field /clinical placement or non-graded subject area.</p> <p>U Unsatisfactory achievement in field/clinical placement or non-graded subject area.</p> <p>X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.</p> <p>NR Grade not reported to Registrar's office.</p> <p>W Student has withdrawn from the course without academic penalty.</p>																				
<b>Course Outcomes and Learning Objectives:</b>	<table> <tr> <th>Course Outcome 1</th><th>Learning Objectives for Course Outcome 1</th></tr> <tr> <td>1. Interpret a survey plan including symbols, distance measurements and bearings.</td><td> 1.1 Identify and interpret the key components of a survey plan.  1.2 Recognize measurements, units and the types of bearings used.  1.3 Identify the acronyms often used on survey plans.  1.4 Interpret Schedule A parcel documents. </td></tr> <tr> <th>Course Outcome 2</th><th>Learning Objectives for Course Outcome 2</th></tr> <tr> <td>2. Utilize AutoCAD to input basic and advanced linework.</td><td> 2.1 Utilize AutoCAD to create basic features such as points, arcs, circles, dimensions and blocks  2.2 Input bearings and distances into the AutoCAD environment. </td></tr> <tr> <th>Course Outcome 3</th><th>Learning Objectives for Course Outcome 3</th></tr> <tr> <td>3. Reproduce a survey plan and input it into a computerized environment.</td><td> 3.1 Use AutoCAD to convert a hard copy survey plan into a digital file.  3.2 Use ArcGIS to convert a hardcopy survey plan into a digital file. </td></tr> <tr> <th>Course Outcome 4</th><th>Learning Objectives for Course Outcome 4</th></tr> <tr> <td>4. Perform data integration between AutoCAD and ArcGIS.</td><td> 4.1 Convert AutoCAD DWG and DXF files into GIS files such as shapefiles and geodatabase feature classes.  4.2 Clean CAD data as necessary in order to use it successfully in a GIS environment.  4.3 Identify techniques to overcome the numerous conversion issues that can arise in this process. </td></tr> <tr> <th>Course Outcome 5</th><th>Learning Objectives for Course Outcome 5</th></tr> <tr> <td>5. Demonstrate the ability to perform basic functions</td><td> 5.1 Load and display data in AutoCAD 3d Map.  5.2 Perform basic queries and spatial analyses in AutoCAD 3d </td></tr> </table>	Course Outcome 1	Learning Objectives for Course Outcome 1	1. Interpret a survey plan including symbols, distance measurements and bearings.	1.1 Identify and interpret the key components of a survey plan. 1.2 Recognize measurements, units and the types of bearings used. 1.3 Identify the acronyms often used on survey plans. 1.4 Interpret Schedule A parcel documents.	Course Outcome 2	Learning Objectives for Course Outcome 2	2. Utilize AutoCAD to input basic and advanced linework.	2.1 Utilize AutoCAD to create basic features such as points, arcs, circles, dimensions and blocks 2.2 Input bearings and distances into the AutoCAD environment.	Course Outcome 3	Learning Objectives for Course Outcome 3	3. Reproduce a survey plan and input it into a computerized environment.	3.1 Use AutoCAD to convert a hard copy survey plan into a digital file. 3.2 Use ArcGIS to convert a hardcopy survey plan into a digital file.	Course Outcome 4	Learning Objectives for Course Outcome 4	4. Perform data integration between AutoCAD and ArcGIS.	4.1 Convert AutoCAD DWG and DXF files into GIS files such as shapefiles and geodatabase feature classes. 4.2 Clean CAD data as necessary in order to use it successfully in a GIS environment. 4.3 Identify techniques to overcome the numerous conversion issues that can arise in this process.	Course Outcome 5	Learning Objectives for Course Outcome 5	5. Demonstrate the ability to perform basic functions	5.1 Load and display data in AutoCAD 3d Map. 5.2 Perform basic queries and spatial analyses in AutoCAD 3d
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Date:	August 22, 2018										
	Please refer to the course outline addendum on the Learning Management System for further information.										