Course Number and Title: GIS 240 Emerging GIS Technologies

Campus Location:
Stanton

Effective Date:
2018-51

Prerequisite:
GIS 110, GIS 120

Co-Requisites:
None

Course Credits and Hours:
3.00 credits
2.00 lecture hours/week
3.00 lab hours/week

Course Description:
This course provides instruction and hands-on experience in rapidly emerging trends in geospatial technology. Students explore new technologies such as open source applications, 3D visualizations, online interactive mapping, innovations in the geospatial industry, and integration with related technologies.

Required Text(s):
Obtain current textbook information by viewing the campus bookstore - https://www.dtcc.edu/bookstores online or visit a campus bookstore. Check your course schedule for the course number and section.

Additional Materials:
None

Schedule Type:
Classroom Course
Hybrid Course
Online Course

Disclaimer:
None

Core Course Performance Objectives (CCPOs):

1. Develop a strategy to stay current with emerging trends in the field. (CCC 1, 3, 4, 5; PGC 1, 6, 7, 8)
2. Compare a variety of geospatial technologies for a specific purpose. (CCC 1, 2, 4, 5, 6; PGC 1, 2, 3, 4, 6, 7, 8)
3. Integrate geographic information systems (GIS) technologies with various software applications. (CCC 1, 2, 4, 5, 6; PGC 1, 4, 6, 7, 8)
4. Demonstrate professional and ethical conduct as expected in industry. (CCC 1, 3, 4; PGC 7, 8)

See Core Curriculum Competencies and Program Graduate Competencies at the end of the syllabus. CCPOs are linked to every competency they develop.

Measurable Performance Objectives (MPOs):
Upon completion of this course, the student will:

1. Develop a strategy to stay current with emerging trends in the field.
    1. Identify emerging trends in geospatial technology.
    2. Discuss technology trends such as volunteered geographic information (VGI), augmented reality, open data, crowdsourcing, and cloud computing and how they relate to geospatial technology.
    3. Identify the potential of new, evolving technologies to meet GIS-related needs.
    4. Identify resources such as articles, conferences, and networking opportunities to keep abreast of emerging trends.
2. Compare a variety of geospatial technologies for a specific purpose.
    1. Identify open source geospatial technologies.
    2. Identify proprietary geospatial technologies.
    3. Explain how GIS technologies can be used to enhance research, visual exploration, analysis, synthesis, and presentation of geospatial data.
    4. Identify common open source geospatial software frameworks and packages.
    5. Use open source software to process GIS data, and describe uses for each software application.
    6. Experiment with a new function using open source software, and use the documentation to invoke it.
    7. Create visualizations using new geospatial technologies.
    8. Compare the options when it comes to choosing between open source and proprietary geospatial software.
3. Integrate geographic information systems (GIS) technologies with various software applications.
    1. Identify software applications with GIS interoperability.
    2. Define data formats necessary for interoperability.
    3. Apply GIS integration with various software applications.
    4. Point out the value of interoperability.
4. Demonstrate professional and ethical conduct as expected in industry.
    1. Identify the need for self-discipline and time management in technical industries.
    2. Communicate and function effectively as a member of a team.
    3. Apply professional and ethical responsibilities under the GIS Certification Institute's Code of Ethics and Rules of Conduct.

Evaluation Criteria/Policies:
Students must demonstrate proficiency on all CCPOs at a minimal 75 percent level to successfully complete the course. The grade will be determined using the Delaware Tech grading system:

92	–	100	=	A
83	–	91	=	B
75	–	82	=	C
0	–	74	=	F

Students should refer to the Student Handbook - https://www.dtcc.edu/handbook for information on the Academic Standing Policy, the Academic Integrity Policy, Student Rights and Responsibilities, and other policies relevant to their academic progress.

Core Curriculum Competencies (CCCs are the competencies every graduate will develop):

1. Apply clear and effective communication skills.
2. Use critical thinking to solve problems.
3. Collaborate to achieve a common goal.
4. Demonstrate professional and ethical conduct.
5. Use information literacy for effective vocational and/or academic research.
6. Apply quantitative reasoning and/or scientific inquiry to solve practical problems.

Program Graduate Competencies (PGCs are the competencies every graduate will develop specific to his or her major):

1. Apply knowledge, techniques and skills of geography and geospatial technologies such as geographic information systems (GIS), Global Navigation Satellite System (GNSS), and remote sensing (RS).
2. Employ cartographic design principles to develop effective visual representations of geospatial data, including maps, graphs and diagrams.
3. Design and implement GIS systems using common geospatial software and hardware to acquire, store, manage, analyze and visualize spatial data for a variety of disciplines.
4. Utilize geospatial techniques and common analytical methods to solve problems.
5. Evaluate and employ effective data management and database design techniques.
6. Apply fundamental concepts of programming, application development, geospatial information technology and related technologies.
7. Integrate a commitment to address professional and ethical responsibilities, including a respect for accuracy standards and diversity.
8. Recognize the need for and an ability to engage in self-directed continuing professional development.

Disabilities Support Statement:
The College is committed to providing reasonable accommodations for students with disabilities. Students are encouraged to schedule an appointment with the campus Disabilities Support Counselor to request an accommodation needed due to a disability. A listing of campus Disabilities Support Counselors and contact information can be found at the disabilities services - https://www.dtcc.edu/disabilitysupport web page or visit the campus Advising Center.