

Information Technology AAS

Geospatial Science and Technology – Concentration

Career & Technical Division

Program Description:

The Mountwest Community & Technical College offers the student the opportunity to work with and develop technical skills with image and image-processing software products. The application of satellite imaging, aerial photography, remote sensing, and geographical information systems is a large growth area with application to many career fields where image enhancement and data analysis can be used in decision making situations. The geospatial worker should possess basic skills in the manipulation of existing GIS software, problem identification and problem solving; mastery of analytic geospatial tools; and critical topics in the fields of computer science, mathematics and statistics, and information technology.

The geospatial workforce must be capable of dealing with a continuing pattern of rapid change, as well as with the substantial challenge of adapting existing knowledge and tools to uses in a variety of new, complex situations. Above-average knowledge of computer and information science, as well as the ability to spend their careers in near-continuous learning mode, become critical characteristics at nearly all levels of the future geospatial workforce.

Career Outlook:

The U.S. Department of Labor recently identified the growing importance of the geospatial based industry, together with 13 other sectors, as the focus of its High-Growth Job Training Initiative. The 14 sectors were selected based on the following criteria:

1. They are projected to add substantial numbers of new jobs to the economy or affect the growth of other industries, or
2. They are existing or emerging businesses being transformed by technology and innovation requiring new skill sets for workers.

In addition to the geospatial industry, only biotechnology and nanotechnology were identified as being among the most important of these emerging and evolving fields (Gewin 2004). While new career titles are being created, the U.S. Department of Labor states that overall employment of surveyors, cartographers, photogrammetrists, and surveying technicians is expected to grow about as fast as the average for all occupations through the year 2014.

Employment Opportunities:

- Business: financial services, insurance, real estate, retail, and commercial business cartography and map publishing
- Communications: location-based services, media and press, and telecommunications conservation
- Defense: defense and intelligence
- Education: schools, libraries, and museums
- Engineering: civil engineering, and surveying
- Government: economic development, elections, general, homeland security, land records, law enforcement, public safety, state and local sustainable development, urban and regional planning
- Health and human services: hospitals and health systems, public health and human services
- Natural Resources: agriculture, archaeology, cave, environmental management, forestry, marine and coast, mining and earth science, petroleum, pipeline, and water resources.
- Transportation: logistics, transportation systems and networks
- Utilities: electric & gas, and water/wastewater

Salary Forecast:

(For the most current salary information please refer to the Bureau of Labor Statistics "Occupational Outlook Handbook" found at www.bls.gov/ooh/.)

Program Admission Requirements:

The college adheres to an open admissions policy which means applicants with a high school diploma or a GED are eligible for admission. Applicants with neither a high school diploma nor a GED may be admitted on a conditional basis.

Common Career Opportunities and Approximate Salaries:

- Technician - junior position, generally 1 to 5 years' experience
(\$20,000 to 29,999 13%) (\$30,000 to 39,999 33%) (\$40,000 to 49,999 19%)
- Analyst - a more senior tech. responsible for spatial analysis and more senior responsibilities on projects. Generally has 3-7 years experience.
(\$30,000 to 39,999 27%) (\$40,000 to 49,999 34%) (> \$50,000 28%)
- Programmer - educational focus was on programming skills. Typically skilled in web programming, VB, MapBasic, AML, etc... Generally has at least 2 years experience.
(\$40,000 to 49,999 18%) (\$50,000 to 59,999 24%) (\$60,000 to 69,999 15%)

Contact Information:

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Our mission is to prepare students for careers, civic responsibility and life-long learning.

Information Technology Major Code – CI20 • Geospatial Science and Technology Concentration Code – CI27				
Name:			ID Number 942-	
CAPS SCORES:	MATH:	ENGLISH:	READ:	DOE:
COL 101 Faculty:				
Educational Counselor:				
Faculty Advisor:				

COURSE REQUIRED

COURSE	REQUIREMENTS	SEM	HRS	GR	SUBSTITUTE/REPEAT CRS	SEM	CR
ENL 111	Written Communication ¹		3				
GEO 150	Introduction to Geography		3				
IT 101/102	Fundamentals of Computers ² (EDGE)		3				
IT 120	Network Operating Systems		4				
GST 160	Geographic Information System Concepts		3				
COM 112	Oral Communication ³		3				
GST 165	Concepts Spatial Analysis & 3D Modeling ⁴		3				
GST 260	Integration of GIS & IS Systems ⁶	Fall	3				
	Approved Elective		3				
	Approved Math Elective ⁵		3				
ENL 231	Technical Report Writing ⁶		3				
IT 250	Applications to Databases		3				
GST 266	Digital Cartography ⁶	Spring	3				
MFE 220	Computer Aided Design I		4				
	Approved Elective		3				
GST 263	GIS Programming ⁷	Spring	3				
GST 299	Geospatial Sci/Tech Internship		3				
MFE 230	Computer Aided Design II		4				
	Approved Elective		3				

DEVELOPMENTAL COURSES REQUIRED

COURSE	REQUIREMENTS	SEM	HRS	GR	SUBSTITUTE/REPEAT CRS	SEM	CR
	Hours Required for Graduation: 62						

Earn A Degree Graduate Early (EDGE):

This program provides students the opportunity to receive credit for their high school EDGE courses.

- ¹ ENL 111 has a prerequisite placement in 100-level English, placement in 100-level reading.
- ² IT 101 or IT 102 will meet the Fundamentals of Computers requirement.
- ³ COM 112 has a prerequisite of placement in 100-level reading.
- ⁴ GST 165, GST 260 and GST 266 have a prerequisite of GST 160.
- ⁵ Approved Math electives are MAT 145, MAT 146, MAT 205 and MAT 215 (select one based on program track-see advisor).
- ⁶ ENL 231 has a prerequisite of placement in 100-level English, and placement in 100-level reading.
- ⁷ IT 263 has a prerequisite of IT 160 and IT 250.

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