

Information Technology Geospatial Science and Technology

Associate in Applied Science



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 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.

Salary Forecast: (U.S. Department of Labor latest update, 2008)

Median annual earnings of surveying and mapping technicians were \$35,120 in 2008.

Median annual earnings of cartographers and photogrammetrists were \$51,180 in 2008.

Median annual earnings of surveying and mapping technicians employed in architectural, engineering, and related services were \$35,480 in May 2008, while those employed by local governments had median annual earnings of \$41,780.

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:

Dr. Randall Jones • Corbly Hall, Room 314

Phone: 304-696-3059 or 1-866-N-ROLLED (1-866-676-5533) • E-mail: jonesr@mctc.edu

Major Code – CI20 • Concentration Code – CI27 – Geospatial Science and Technology

FIRST YEAR	
<p>First Semester</p> <p>ENL 111 Written Communication 3 IT 101/102 Fundamentals of Computers¹(EDGE)..... 3 IT 160 Geographic Information System Concepts 3 IT Approved IT Elective 3 MAT Approved Math Elective² 3 TOTAL CREDITS..... 15</p>	<p>Second Semester</p> <p>COM 112 Oral Communication 3 IT 120 Network Operating Systems..... 4 IT 165 Concepts Spatial Analysis & 3D Modeling³ 3 IT Approved IT Elective 3 SS Approved Social Science Elective⁴ 3 TOTAL CREDITS 16</p>
SECOND YEAR	
<p>First Semester</p> <p>ENL 115 Written Communication II 3 IT 221 Advanced Operating Systems⁵..... 3 IT 250 Applications to Databases⁶..... 3 IT 260 Integration of GIS and RS Systems³..... 3 IT 270 Computer Essentials and Applications⁶ 4 TOTAL CREDITS..... 16</p>	<p>Second Semester</p> <p>ENL231 Technical Report Writing 3 IT 266 Image Web Server Development³ 3 IT 277 Management Information Systems⁷..... 3 IT 299 Information Technology Internship⁸..... 3 IT Approved IT Elective..... 3 TOTAL CREDITS 15</p>
HOURS REQUIRED FOR GRADUATION: 62	

Employment Opportunities:

- Business: financial services, insurance, real estate, retail, and commercial business cartography and map publishing
- Communications: location-based services, media and press, telecommunications conservation
- Defense: defense and intelligence
- Education: schools, libraries, and museums
- Engineering: civil engineering, 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 warth science, petroleum, pipeline, water resources.
- Transportation: logistics, transportation systems and networks
- Utilities: electric & gas, water/wastewater

Earn A Degree Graduate Early (EDGE):

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

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1. IT 101 or IT 102 will meet the Fundamentals of Computers requirement.
 2. Approved Math Electives are MAT 145, MAT 146, MAT 205 and MAT 215 (select one based on program track - see advisor).
 3. IT 165, IT 260 and IT 266 have a prerequisite of IT 160.
 4. These courses should be chosen from EC 102, SS 201, SS 210 and SS 215.
 5. IT 221 has a prerequisite of IT 120 or IT 131.
 6. IT 250 and IT 270 have a prerequisite of IT 101.
 7. IT 277 to be taken in last semester or permission.
 8. Permission of Program Coordinator is required in order to enroll in IT 299.