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%)

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www.mctc.edu Mountwest Community & Technical College 04/30/2014 Academic Year 2014-2015
### Course Required

<table>
<thead>
<tr>
<th>Course</th>
<th>Requirements</th>
<th>SEM</th>
<th>HRS</th>
<th>GR</th>
<th>Substitute/Repeat CRS</th>
<th>SEM</th>
<th>CR</th>
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<tbody>
<tr>
<td>ENL 111</td>
<td>Written Communication(^1)</td>
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<td>3</td>
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<tr>
<td>IT 101/102</td>
<td>Fundamentals of Computers(^2) (EDGE)</td>
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<tr>
<td>IT 120</td>
<td>Network Operating Systems</td>
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<tr>
<td>IT 160</td>
<td>Geographic Information System Concepts</td>
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<tr>
<td>IT 250</td>
<td>Applications to Databases(^3,4)</td>
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<tr>
<td>COM 112</td>
<td>Oral Communication(^5)</td>
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<tr>
<td>IT 165</td>
<td>Concepts Spatial Analysis &amp; 3D Modeling(^6)</td>
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<td>IT 221</td>
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<tr>
<td>IT 270</td>
<td>Computer Essentials and Applications(^3)</td>
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<td></td>
<td>Approved Math Elective(^9)</td>
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<td>IT 210</td>
<td>Networking Administration I(^4,10,11)</td>
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<td>IT 260</td>
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<td>ENL 231</td>
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<td>IT 266</td>
<td>Image Web Server Development(^9)</td>
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<td>IT 277</td>
<td>Management Information Systems(^14)</td>
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<td>IT 299</td>
<td>Information Technology Internship(^15)</td>
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### Developmental Courses Required

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| Hours Required for Graduation: 62

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**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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\(^1\) ENL 111 has a prerequisite of ENL 095 or placement in 100-level English, and REA 098 or placement in 100-level reading.

\(^2\) IT 101 or IT 102 will meet the Fundamentals of Computers requirement.

\(^3\) IT 250 and IT 270 have a prerequisite of IT 101 or IT 102.

\(^4\) IT 210, IT 211, IT 216, IT 217, and IT 250 are offered fall semesters only.

\(^5\) COM 112 has a prerequisite of IT 101 or IT 102.

\(^6\) It 160, IT 205, and IT 225 have a prerequisite of IT 101 or IT 102.

\(^7\) IT 211 has a prerequisite of IT 210, IT 216, and IT 217.

\(^8\) IT 216 has a prerequisite of IT 120.

\(^9\) Networking Administration classes IT 210, IT 211, IT 216 and IT 217 must be taken concurrently. These classes cannot be taken individually.

\(^10\) IT 211 has a prerequisite of IT 210, IT 216, and IT 217.

\(^11\) ENL 231 has a prerequisite of ENL 095, or placement in 100-level English, and REA 098, or placement in 100-level reading.

\(^12\) IT 277 must be taken in last semester or with permission.

\(^13\) Permission of Program Coordinator/Dean is required in order to enroll in IT 299.

\(^14\) Choose from any of the following: IT 107, IT 110, IT 115, IT 131, IT 141, IT 150, IT 171, IT 212, IT 213, IT 215, IT 219, IT 222, IT 223, IT 224, IT 225, IT 226, IT 227, IT 230, IT 231, IT 240, IT 241, IT 242, IT 245, IT 255, IT 260, IT 269, IT 270, IT 272, IT 276, IT 278, IT 279.