

Geographic Information Systems

C. I. D. T.
Computer Information
and Design Technologies

Analyst Level 1 Certificate

| Course | Credit Hours | Contact Hours | Required Prerequisite Or *Co-requisite |
|--|--------------|---------------|---|
| 1st Semester | | | |
| COSC 1301 - Microcomputer Applications | 3 | 4 | Prerequisite: 0370. The student must earn a grade of "C" or higher in prerequisite courses. Credit by exam. |
| CRTG 1402 - Understanding Geographic Information Systems | 4 | 6 | None |
| CRTG 1444 - Using Geographic Information Systems | 4 | 6 | CRTG 1402 |
| 2nd Semester | | | |
| COSC 1336 - Intro to Programming | 3 | 4 | None |
| ITSE 1346 - Database Theory and Design | 3 | 4 | None |
| CRTG 2404 - GIS Design with Vector Analysis | 4 | 6 | None |
| 3rd Semester | | | |
| CRTG 2402 - GIS Design with Raster Analysis | 4 | 6 | None |
| CRTG 2335 - Programming for Geographic Information Systems | 3 | 6 | None |
| CRTG 2380 - Cooperative Education - Cartography | 3 | 4 | None |
| PROGRAM TOTAL: | 31 | | |

The GIS Analyst Certificate is designed to give students more in depth knowledge of geographic information systems. In addition to the introductory and analytical skills provided in the Technician Certificate, the student will learn basic computer skills, database skills, introductory programming skills and skills in programming for geographic information systems

An internship helps bridge the gap from formal training to full time employment.

Some course prerequisites may include: Work experience or consent of instructor, please check with instructor.

GIS Analyst Level 1 Certificate

CORE COURSE DESCRIPTIONS

CRTG 1402. Understanding Geographic Information Systems. This is an introductory course covering the theory and application of geographic information sciences (GIS). The course includes an overview of the general principles of GIS and experience in its use.

CRTG 1444. Using Geographic Information Systems. This course covers the theory and application of Geographic Information Science (GIS) and the relationship between the principles of cartography, geography and their use in geospatial analysis. Emphasis is on global reference systems (GPS technology). This course will use satellite and GPS technology for measurement and navigation.

Field Data collection required for this course.

Prerequisites: CRTG 1402, work experience or consent of the instructor

CRTG 2402 – GIS Design with Raster Analysis. This course is designed to familiarize the student with raster/remote sensing principles, technologies and applications. Students will learn how to process raster imagery into useful information to be used in a GIS. The student will also be instructed on geo-referencing and image classification. This class will utilize lecture, demonstration and hands-on training. Emphasis is placed on a final project in which students will present a project to the class that demonstrates raster and remote sensing techniques.

CRTG 2404 – GIS Design with Vector Analysis. The introductory course in GIS answered the basic question "What is GIS"? This continuation of that class will take the basics learned and begin to explore the question "Why use GIS"? Students will learn to use GIS as a problem solving tool from the first stages of designing an analysis project, through the data collection and manipulation phase to the final phase of presenting the project. Emphasis is placed on making the final project both thorough and presented in a good, graphic manner.

CRTG 2335 – Programming for Geographic Information Systems . This course focuses on the use of Visual Basic to customize and expand the capability of GIS applications. Instruction will include object-oriented and component programming. Students will customize the GIS Graphical User Interface (GUI). Students will learn to interact with users via GUI dialogs. Students will access GIS components and data within their created tools or program/s. Students will create and/or edit GIS data with created program/s. Students will learn to reduce convoluted routines programmatically.

CRTG 2380 – Cooperative Education - Cartography. Co-op comprises Career related activities encountered in the student's area of specialization, offered through an individualized agreement among the college, employer and student. Under supervision of the college and the employer, the student combines classroom learning with work experience. This course includes a lecture component..

