



DEL MAR COLLEGE
101 Baldwin, CC TX. 78404

CS/IT DEPARTMENT-VB 113
(361) 698-1299

**I: GISC 1491 Special Topics in Geographic Information Systems
(2-4-3) 45.0702**

Course Description: Topics address recently identified current events, skills, knowledge, attitudes, and behavior pertinent to the technology or occupation and relevant to the professional development of the student. Prerequisites: [ITSW 1407](#), [GISC 1421](#), [Database course or consent of instructor](#).

Course IDEA Objectives

Essential: Gaining factual knowledge of GIS (terminology, classifications, methods, trends)

Essential: Developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course.

Essential: Learning to apply course material (to improve thinking, problem solving, and decisions).

Important: Learning how to find and use resources for answering questions or solving problems

II: SCANS (Secretary's Commission on Achieving Necessary Skills) competencies are integrated into these course competency-based outcomes to improve your education by helping you better define and use work place skills needed for employment. Each competency will integrate several scans competency to assist you in developing and reinforcing employable skills. Competencies are criterion reference (i.e. they are measured against predetermined levels of proficient in skill for effective job performance).

The know-how identified by SCANS is made up of five workplace competencies and three foundation skills that are needed for solid job performance. These are:

- **Workplace Competencies** – Effective workers can productively use:
 - Resources** – They know how to allocate (C1) time, (C2) money, (C3), materials, and (C4) staff
 - Information** – They can (C5) acquire and evaluate data, (C6) organize and maintain files, (C7) interprets and communicate, and (C8) use computers to process information.
 - Interpersonal skills** – They can (C9) work on teams, (C10) teach others, (C11) serve customers, (C12) lead, (C13) negotiate, and (C14) work well with people from culturally diverse backgrounds,
 - Systems** – They (C15) understand social, organizational, and technological systems, (C16) they can monitor and correct performance; and (C17) they can design or improve systems.



Technology – They can (C18) select equipment and tools, (C19) apply technology to specific tasks and (C20) maintain and troubleshoot equipment.

- **Foundation skills** – Competent workers in the high-performance workplace need:
Basic Skills – (F1) reading, (F2) writing, (F3) arithmetic and (f4) mathematics, (f5) listening and (F6) speaking.
Thinking skills – (F7) to think creatively, (F8) to make decisions, (F9) to solve problems, (F10) to visualize, (F11) the ability to learn, and (F12) to reason.
Personal Qualities – (F13) individual responsibility, (F14) self-esteem, (F15) sociability, (F16) self-management, and (F17) integrity.

III: Learning Outcomes / Job Skills

The student will be able to analyze problems, visualize solutions to problems, design and modify programs logic to create workable computer programs or map projects.

- **Course competencies – Through class interaction reading materials and individual and group study, and laboratory assignments the student will be able to:**

Expanding the User Interfaces in ArcMap, ArcPad and ArcIMS

- A. Understand the use of customized User Interface in GIS systems
- B. Add and Remove toolbars
- C. Obtain code samples
- D. Understand the structure of the development environment
- E. Place Code in the proper place in the development environment
- F. Develop code and assign code to buttons or tools
- G. Understand the use of the normal template, personalized templates and project templates
- H. Installing DLL s
- I. Work with the windows registry to install the components
- J. Develop proper User Interface documenting reporting and presentation of interpreted data
- K. Select a project and create a customized interface
- L. Document the project as outlined by the Instructor
- M. Present the solution to the class

- **Instructional Strategy – To facilitate mastery of above listed competency. The instructor will be responsible for:**

- 1 Gaining the students attention
- 2 Informing student of objectives
- 3 Stimulate recall of prior knowledge
- 4 Presenting new material
- 5 Providing guided practice
- 6 Eliciting performance
- 7 Providing feedback
- 8 Assessing performance



9 Enhancing retention and transfer of knowledge

•Student assignments – To demonstrate mastery of the competency listed above, the student will be responsible for:

- 1 Completing and achieving a passing grade on unit tests and examinations.
- 2 Attending class, attention to lectures, and completing required reading and on-line materials.
- 3 Completing and submitting assigned projects and homework by due dates.
- 4 Class and group laboratory participation to demonstrate mastery of GIS database use, working with spatial data, use of raster data, and integration of raster data to GIS geo-reference database.
- 5 Completing and achieving a passing grade in a comprehensive final examination.

• Additions to Course Goals (Learning Outcomes (LOs) based on Key Activities (KAs) under Critical Work Functions (CWF) in the Geographic Information System (GIS) Technician Skill Standards identified by the GIS Advisory Board with cooperation from Del Mar College. The skill standards (AEKS Matrix) were recognized May 22, 2007, by the Texas Skill Standards Board (TSSB).

1. Define the data requirements, research sources of available data, and purchase data from reputable source. KA1.1
2. Determine data compatibility (projection), perform data conversion, populate feature attributes. KA1.3
3. Perform both tablet, COGO, and on-screen digitization with attribution. KA1.4
4. Collect field attribute and location data via GPS (Tablet PC/PDA). KA1.5
5. Maintain data QA/QC through update operations: (add/delete/change) KA3.2
6. Perform data layer updates and update metadata (imagery/themes). KA3.3
7. Preprocess geographic data (generalize, subset). KA4.3
8. Perform geo-processing through clipping, buffering, overlay, etc. KA4.4
9. Perform quality control and assurance. KA4.6
10. Create maps. KA5.1
11. Create analysis report. KA5.2
12. Define user software needs and determine application design format (hardware platform and programming language). KA6.1
13. Create customized software application solution. KA6.2
14. Create map templates. KA6.3
15. Resolve user technical problems KA8.1
16. Install and maintain software including service packs. KA8.2
17. Coordinate GIS projects including cost estimates, timelines, and budgets. KA9.2
18. Participate in GIS awareness events such as presentations, conferences and user groups. KA9.5
19. Continue professional education through credit and/or noncredit courses, technical training and informal education, such as online courses. KA10.2



IV: Relations of Learning Objectives to SCANS Competencies

• Competency-based Outcomes with Workplace Proficiency Levels

	Resources				Information				Interpersonal Skills						Systems			Technology		
	C 1	C 2	C 3	C 4	C 5	C 6	C 7	C 8	C 9	C 10	C 11	C 12	C 13	C 14	C 15	C 16	C 17	C 18	C 19	C 20
A	3	1	3	1	3	3	2	3	3	3	2	3	3	4	2	2	2	2	3	2
B	3	1	3	1	4	3	2	3	3	2	2	3	3	4	3	2	3	2	2	2
C	3	1	3	1	3	3	2	3	3	2	2	3	3	4	3	2	3	2	2	2
D	2	1	2	1	4	3	2	3	3	2	2	3	3	4	4	2	2	2	2	2
E	2	1	2	1	4	3	2	3	3	3	2	3	3	4	2	2	2	2	2	2
F	2	2	2	1	2	3	2	2	2	2	2	3	3	4	3	3	2	3	2	2
G	3	3	3	1	4	3	2	3	3	3	2	3	3	4	3	3	2	3	2	2
H	2	2	2	1	2	3	2	2	3	3	2	3	3	4	2	2	2	2	2	2
I	3	2	3	1	3	3	3	3	3	3	2	3	3	4	2	2	2	2	2	2
J	3	2	3	1	2	3	2	2	3	2	2	3	3	4	2	2	2	2	3	2
K	3	2	3	1	2	3	2	2	3	2	2	3	3	4	2	2	2	2	2	2
L	2	2	2	1	2	3	2	2	3	2	2	3	3	4	2	2	2	2	2	2
M	2	2	2	1	2	3	2	2	3	2	2	3	3	4	2	2	2	2	2	2



•Competency-based Outcomes with Foundation Skill Level

	Basic Skills						Thinking Skills						Personal Qualities				
	F 1	F 2	F 3	F 4	F 5	F 6	F 7	F 8	F 9	F 10	F 11	F 12	F 13	F 14	F 15	F 16	F 17
A	4	4	3	3	4	4	4	4	4	4	4	4	5	4	4	4	5
B	4	4	3	3	4	4	4	4	4	4	4	4	5	4	4	5	5
C	4	4	3	3	4	4	4	4	4	4	4	4	5	4	4	5	5
D	4	4	3	3	4	4	4	4	4	4	4	4	4	4	4	4	5
E	4	4	3	3	4	4	4	4	4	4	4	4	5	4	4	5	5
F	4	4	3	3	4	4	4	4	4	4	4	4	3	4	4	3	3
G	4	4	3	3	4	4	4	4	4	4	4	4	3	3	3	3	3
H	4	4	3	3	4	4	4	4	4	4	4	4	3	4	4	3	3
I	4	4	3	3	4	4	4	4	4	4	4	4	4	3	3	3	3
J	4	4	3	3	4	4	4	4	4	4	4	4	3	4	4	3	3
K	4	4	3	3	4	4	4	4	4	4	4	4	3	4	4	3	3
L	4	4	3	3	4	4	4	4	4	4	4	4	3	4	4	3	3
M	4	4	3	3	4	4	4	4	4	4	4	3	3	4	4	3	3

Proficiency Level for the SCAN Competency Relations Tables

- 1 – rarely performs task
- 2 – routinely performs task w/ moderate supervision
- 3 – routinely performs task w/minimum supervise
- 4 – routinely performs tasks
- 5 – routinely performs task over/beyond designation task