COWLEY COLLEGE
& Area Vocational Technical School

COURSE PROCEDURE FOR

GEOGRAPHIC INFORMATION SYSTEMS APPLICATIONS
CIS1764 3 Credit Hours

Student Level:
This course is open to students on the college level in either the Freshman or Sophomore year.

Catalog Description:

CIS1764 – GEOGRAPHIC INFORMATION SYSTEMS APPLICATIONS (3 hrs)
This course will prepare students for the ArcGIS Web Application Developer Associate certification. The topics will include basics of GIS on the Web, Geospatial web services, Geospatial mashups, mobile GIS, Geoportals, NSDI, Web GIS application in e-business, Web GIS applications in e-government, and real world case studies.

Prerequisites:
None.

Co-requisites:
None

Controlling Purpose:
This course is designed to prepare students to work with the ArcGIS software with real world situations. These concepts provide a foundation for further courses in geographic information systems and preparation for the ArcGIS Web Application Developer Associate certification test.

Learner Outcomes:
Upon completion of the course, the student will be able to explain the following topics: basics of GIS on the Web, Geospatial web services, Geospatial mashups, mobile GIS, Geoportals, NSDI, Web GIS application in e-business, and Web GIS applications in e-government. The student will solve real world case studies.

Units Outcomes and Clock Hours of Instruction for Core Curriculum:
The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

Evaluation Key:
A = All major and minor goals have been achieved and the achievement level is

considerably above the minimum required for doing more advanced work in the same field.

B = All major goals have been achieved, but the student has failed to achieve some of the less important goals. However, the student has progressed to the point where the goals of work at the next level can be easily achieved.

C = All major goals have been achieved, but many of the minor goals have not been achieved. In this grade range, the minimum level of proficiency represents a person who has achieved the major goals to the minimum amount of preparation necessary for taking more advanced work in the same field, but without any major handicap of inadequacy in his background.

D = A few of the major goals have been achieved, but the student's achievement is so limited that he is not well prepared to work at a more advanced level in the same field.

F = Failing, will be computed in GPA and hours attempted.

N = No instruction or training in this area.

UNIT 1: GIS in the Web Era

Outcomes: Demonstrate knowledge of GIS on the Web

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Define the Web and GIS
						Discuss Web GIS origins and evolutions
						Describe the Web GIS concept
						List common Web GIS applications

UNIT 2: Technical Basics

Outcomes: Demonstrate the knowledge necessary to explain the basics of the Web and Web GIS

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Define web fundamentals
						Describe Web GIS basic architecture and components
						Contrast thin versus thick client architecture
						Discuss user experience design

UNIT 3: Geospatial Web Services Outcomes: Explain the different features of Geospatial Web service including service functions and service types						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Contrast web sites to web services
						Compare Geospatial Web service functions
						Define Web service types
						Discuss Interoperability and geospatial Web service standards
						Explain how to optimize web services

UNIT 4: Geospatial Mashups Outcomes: Describe how Geospatial mashups are used for web contents, functions, and interfaces						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Discuss evolution and impact
						Describe web contents, functions, and interfaces
						Define mashup design and implementation
						Discuss challenges and prospects

UNIT 5 : Mobile GIS Outcomes: Describe the techniques of implement GIS in the mobile environment						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Contrast uses and benefits
						Define supporting technologies
						List solutions and products
						Discuss application case studies
						Compare challenges and prospects

UNIT 6: Geoportals Outcomes: Explain the purpose of geoportals and case studies related to the benefits						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:

						Define concepts and uses
						Describe functions and architectures
						Discuss geoportal case studies
						Explain challenges and prospects

UNIT 7: NSDI in the Web 2.0 Era

Outcomes: Define the current usage and definition of NSDI including Web services and Web services sharing

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Contrast data duplication and Web services
						Define Web services sharing
						Describe assembling Web services
						Explain challenges and prospects

UNIT 8: Web GIS Applications in E-Business

Outcomes: Explain how Web GIS applications are used electronically in business

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Describe e-business and geobusiness
						Define types of applications
						Explain challenges and prospects

UNIT 9: Web GIS Applications in E-Government

Outcomes: Explain how Web GIS applications are used electronically in the government

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Describe e-government and geogovernment
						Define types of applications
						Explain challenges and prospects

UNIT 10: Case Study Re-creation and Analysis Outcomes: Recreate real world situations that will be solved in ArcGIS for a variety of application areas						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Create ArcGIS solutions to real world situations in hazardous emergency
						Build ArcGIS solutions for real world situations in hurricane damage
						Design ArcGIS solutions for real world situations in law enforcement
						Create ArcGIS solutions to real world situations in composite images
						Build ArcGIS solutions for real world situations in unsupervised classification
						Design ArcGIS solutions to real world situations in supervised classification
						Create ArcGIS solutions to real world situations in basic lidar
						Build ArcGIS solutions for real world situations in location of solar panels
						Design ArcGIS solutions for real world situations in forest navigation height
						Create ArcGIS solutions to real world situations in drone mapping

Projects Required:
Varies, refer to syllabus.

Textbook:
Contact Bookstore for current textbook.

Materials/Equipment Required:
None

Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:
The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:
Based on classroom occupancy

Course Time Frame:
The U.S. Department of Education, Higher Learning Commission and the Kansas Board of Regents define credit hour and have specific regulations that the college must follow when developing, teaching and assessing the educational aspects of the college. A credit hour is an amount of work represented in intended

learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work for approximately fifteen weeks for one semester hour of credit or an equivalent amount of work over a different amount of time. The number of semester hours of credit allowed for each distance education or blended hybrid courses shall be assigned by the college based on the amount of time needed to achieve the same course outcomes in a purely face-to-face format.

Refer to the following policies:

402.00 Academic Code of Conduct
263.00 Student Appeal of Course Grades
403.00 Student Code of Conduct

Disability Services Program:
Cowley College, in recognition of state and federal laws, will accommodate a student with a documented disability. If a student has a disability which may impact work in this class and which requires accommodations, contact the Disability Services Coordinator.