COURSE SYLLABUS

LAST REVIEW	Fall 2022
COURSE TITLE	Surveying I
COURSE NUMBER	SURV 0101
DIVISION	Career and Technical Education
DEPARTMENT	SURV
CIP CODE	15.1102
CREDIT HOURS	3
CONTACT HOURS/WEEK	Class: 2 Lab: 2
PREREQUISITES	MATH 0112 and ENGL 0101
COURSE PLACEMENT	Students must meet the correct placement measure for this course. Information may be found at: https://www.kckcc.edu/admissions/information/mandatory-evaluations-placement.html

COURSE DESCRIPTION

This course teaches basic surveying principles, mathematics, and operations with emphasis on basic computations and operation of equipment including the surveyor's tape, level, and total station. This course has a laboratory component where the student learns basic instrument use and elementary surveying operations through a variety of field exercises.

PROGRAM ALIGNMENT

This course is part of a program aligned through the Kansas Board of Regents and Technical Education Authority. For more information, please visit: https://kansasregents.org/workforce_development/program-alignment

PROGRAM LEARNING OUTCOMES

1. Prepare students with a holistic education for a long-term career as a responsible licensed professional in land surveying with educational content that includes: the science of making measurements; proper use of technology; ability to perform analysis on and adjust surveying measurements; understand the legal aspects of boundary surveying including retracement of original surveys; interpret, write and survey land descriptions; and understand the basic principles of managing a surveying business.
2. Have an active, engaged professional advisory committee that aligns the educational objectives such that the program reflects changes in technology, regulatory laws, rules and regulations and complies with professional standards of conduct.
3. Partner with professionals, service companies and technology providers in the surveying industry as well as government entities to enable student internships, employment opportunities, engagement with the public, and student scholarships and grants.
4. Graduates will, upon graduation, be prepared to take and pass the NSPS Level I Certified Survey Technician exam.

TEXTBOOKS
http://kckccbookstore.com/

METHOD OF INSTRUCTION
A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE
I. Surveying principle
   A. Methods
   B. Tools
   C. Introduction to the basic units used in surveying (Chains, Poles, etc.) and conversion problems.
II. Survey distance measurements
   A. Distance
   B. Electronic
III. Vertical distances
   A. Differential leveling including profiles and cross sections
   B. Trigonometric leveling
   C. Other leveling methods
IV. Angle measurement
   A. Total station
   B. Compass
   C. Angle measuring techniques
V. Directions of lines (azimuths, bearings)
   A. Magnetic directions, declinations
VI. Calculating corrections to measurements
VII. Measuring a traverse
   A. Adjusting angles
   B. Calculating bearings or azimuths of traverse lines
VIII. Errors in measurements
   A. Systematic errors
   B. Random errors
   C. Statistics and probability
   D. Combining results of errors in measurements

COURSE LEARNING OUTCOMES
Upon successful completion of this course, the student will:

A. Identify appropriate methods and tools for common land surveying applications.
B. Apply techniques to account for errors.
C. Conduct taping operations and other distance measurement techniques.
D. Utilize a level for differential and profile leveling.

E. Utilize a manual total station to conduct survey operations including measuring horizontal angles, vertical angles, and slope and horizontal distances.
F. Perform calculations using measured data to generate solutions required for common land surveying projects.
G. Measure, adjust and calculate a traverse line.
H. Develop and maintain a survey field book.

ASSESSMENT OF COURSE LEARNING OUTCOMES

Student progress is evaluated through both formative and summative assessment methods. Specific details may be found in the instructor's course information document.

COLLEGE POLICIES AND PROCEDURES

Student Handbook
https://www.kckcc.edu/files/docs/student-resources/student-handbook-and-code-of-conduct.pdf

College Catalog
https://www.kckcc.edu/academics/catalog/index.html

College Policies and Statements
https://www.kckcc.edu/about/policies-statements/index.html

Accessibility and Accommodations
https://www.kckcc.edu/academics/resources/student-accessibility-support-services/index.html.