

COURSE SYLLABUS

LAST REVIEW	Fall 2022
COURSE TITLE	Survey CAD
COURSE NUMBER	SURV 0202
DIVISION	Career and Technical Education
DEPARTMENT	SURV
CIP CODE	15.1102
CREDIT HOURS	3
CONTACT HOURS/WEEK	Class: 3 Lab: X
PREREQUISITES	SURV 0102

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 will provide the student with information in the area of civil drafting. It will provide instruction from surveying to construction, courthouse research to artistic interpretation. It will further include GIS (Geographic Information Systems) as applied to civil drafting and the basic components of mapping.

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/>

METHODS 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. Introduction to Civil Drafting
 - A. General Maps
 - B. Map Requirements
 - C. Cartography
- II. Surveying Fundamentals
 - A. Size and Shape of the Earth
 - B. Survey types
 - C. Measuring and Elevation
 - D. Traversing
 - E. Electronic Traversing
 - F. Global Position System
 - G. Location and Direction
 - H. Map Direction
 - I. Plots using Latitude and Departures
- III. Mapping Scales
 - A. Numerical Scales
 - B. Graphic Scales
 - C. Verbal Scales
 - D. Scale Conversion
 - E. Engineer Scales
 - F. Metric Scales
- IV. Mapping Symbols & Legal Descriptions and Plot Plans
 - A. Symbols Types
 - B. Special Techniques
 - C. Metes and Bounds
 - D. Lot and Block
 - E. Rectangular
 - F. Plot Plans
- V. Contour Lines, Profiles, and Highway Layout
 - A. Types of Contour Lines
 - B. Plotting Contour Lines from Field Notes
 - C. Enlarging Contour Maps
 - D. Contour Map Profiles
 - E. Profile Leveling

- F. Plan and Profile
- G. Highway Plan Layout
- H. Highway Profile Layout
- VI. Earthwork
 - A. Highway Cut-and-Fill Layout
 - B. Cross Sections
 - C. Site Plan Cut-and-Fill Layout
 - D. Earthwork Calculations
- VII. Site Plans
 - A. Plan Views
 - B. Site Plan Requirements
 - C. Describing and Locating Property
 - D. Utilities on a Site Plan
 - E. Sewage Disposal Methods
 - F. Site Plan Layout

COURSE LEARNING OUTCOMES AND COMPETENCIES

Upon successful completion of this course, the student will:

- A. Identify maps and map requirements as they relate to civil drafting.
 1. Interpret aeronautical charts.
 2. Interpret cadastral maps.
 3. Interpret engineering maps.
 4. Interpret geographical maps.
 5. Interpret hydrological maps.
 6. Interpret military maps.
 7. Interpret planning maps.
 8. Demonstrate knowledge of cartography.
 9. Interpret nautical maps.
 10. Demonstrate knowledge of the requirements of maps.
- B. Demonstrate knowledge of surveying fundamentals as they relate to civil drafting.
 11. Identify four ways in which the size and shape of the earth may be shown.
 12. Identify five different types of surveys.
 13. Identify and interpret measurements and elevation symbols as found on civil drafting drawings.
 14. interpret data found by traversing.
 15. interpret data found by electronic traversing.
 16. interpret data found by using the global system.
 17. interpret location.
 18. interpret direction.
 19. interpret map direction.
 20. interpret plots using latitude and departures.

- C. interpret mapping scales as they relate to civil drafting.
 - 21. identify and interpret numerical scales.
 - 22. identify and interpret graphic scales.
 - 23. identify and interpret verbal scales.
 - 24. identify and interpret engineering scales.
 - 25. identify and interpret metric scales.
 - 26. make scale conversions.

- D. interpret mapping symbols, legal descriptions, and plot plans.
 - 27. identify and interpret relief symbols.
 - 28. identify and interpret water symbols.
 - 29. identify and interpret vegetation symbols.
 - 30. identify and interpret feature symbols.
 - 31. identify and interpret topographic symbols.
 - 32. identify and interpret rocky terrain symbols.
 - 33. identify and interpret depression symbols.
 - 34. identify and interpret sand dune symbols.
 - 35. identify and interpret a metes and bounds and bounds legal description.
 - 36. identify and interpret a lot and block legal description.
 - 37. identify and interpret a rectangular plot plan.
 - 38. create a plot plan.

- E. identify and interpret contour lines, profiles, and highway layouts as they relate to civil drafting.
 - 39. create a drawing using depression contour lines.
 - 40. create a drawing showing rapids and whirlpool contour lines.
 - 41. enlarge contour maps.
 - 42. create contour map profiles.
 - 43. interpret slope by reading contour lines.
 - 44. create and assign values to contour lines.
 - 45. create a contour map using a grid layout.
 - 46. enlarge a contour map using Architectural Software.
 - 47. create a map using profile construction techniques.
 - 48. interpret profile leveling measurements to create a map.

- F. identify and interpret earthwork civil drafting drawings.
 - 49. use the plan and profile method to create a highway layout.
 - 50. identify and interpret the point of a reverse curve.
 - 51. calculate the length of a curve.
 - 52. calculate the delta angle on a highway layout.
 - 53. interpret data and create a drawing by analyzing data from a centerline route survey.
 - 54. create a highway cut-and-fill cross sectional area.
 - 55. The student will be able to create a site plan cut-and-fill cross sectional area.

- G. demonstrate knowledge of site plans.
- 56. interpret plan views.
 - 57. interpret site plan requirements.
 - 58. describe and locate property.
 - 59. identify utilities and sewage disposal methods.
 - 60. identify site plan layouts.

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>.