DATE OF LAST REVIEW: 2/15/2013

CIP CODE: 15.1302

SEMESTER: Departmental Syllabus

COURSE TITLE: Civil Drafting Technology

COURSE NUMBER: ENGR-0268

CREDIT HOURS: 4

INSTRUCTOR: Departmental Syllabus

OFFICE LOCATION: Departmental Syllabus

OFFICE HOURS: Departmental Syllabus

TELEPHONE: 913-334-1100

EMAIL: KCKCC-issued email accounts are the official means for electronically communicating with our students.

PREREQUISITE(S): None

REQUIRED TEXT(S): Please check with the KCKCC bookstore, http://www.kckccbookstore.com for the required text for your particular class.

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.

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, and panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE:

Course content may vary, but will generally include the following:

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. Geographic Information Systems
   A. GIS Concepts
   B. GIS Components
   C. Data Formats
   D. Related Disciplines
   E. GIS Applications
   F. GIS Industry
   G. Trends in GIS

EXPECTED LEARNER OUTCOMES:
A. Upon completion of the course the student will be able to identify maps and map requirements as they relate to civil drafting.
B. Upon completion of the course the student will be able to demonstrate knowledge of surveying fundamentals as they relate to civil drafting.
C. Upon completion of the course the student will be able to interpret mapping scales as they relate to civil drafting.
D. Upon completion of the course the student will be able to interpret mapping symbols, legal descriptions, and plot plans.
E. Upon completion of the course the student will be able to identify and interpret contour lines, profiles, and highway layouts as they relate to civil drafting.
F. Upon completion of the course the student will be able to identify and interpret earthwork civil drafting drawings.
G. Upon completion of the course the student will be able to demonstrate knowledge of GIS and its’ relationship to civil drafting.

COURSE COMPETENCIES:

Upon completion of the course the student will be able to identify maps and map requirements as they relate to civil drafting.

1. Upon completion of the course the student will be able to interpret aeronautical charts.
2. Upon completion of the course the student will be able to interpret cadastral maps.
3. Upon completion of the course the student will be able to interpret engineering maps.
4. Upon completion of the course the student will be able to interpret geographical maps.
5. Upon completion of the course the student will be able to interpret hydrological maps.
6. Upon completion of the course the student will be able to interpret military maps.
7. Upon completion of the course the student will be able to interpret planning maps.
8. Upon completion of the course the student will be able to demonstrate knowledge of cartography.
9. Upon completion of the course the student will be able to interpret nautical maps.
10. Upon completion of the course the student will be able to demonstrate knowledge of the requirements of maps.

Upon completion of the course the student will be able to demonstrate knowledge of surveying fundamentals as they relate to civil drafting.

11. Upon completion of the course the student will be able to identify four ways in which the size and shape of the earth may be shown.
12. Upon completion of the course the student will be able to identify five different types of surveys.
13. Upon completion of the course the student will be able to identify and interpret measurements and elevation symbols as found on civil drafting drawings.
14. Upon completion of the course the student will be able to interpret data found by traversing.
15. Upon completion of the course the student will be able to interpret data found by electronic traversing.
16. Upon completion of the course the student will be able to interpret data found by using the global system.
17. Upon completion of the course the student will be able to interpret location.
18. Upon completion of the course the student will be able to interpret direction.
19. Upon completion of the course the student will be able to interpret map direction.
20. Upon completion of the course the student will be able to interpret plots using latitude and departures.

Upon completion of the course the student will be able to interpret mapping scales as they relate to civil drafting.

21. Upon completion of the course the student will be able to identify and interpret numerical scales.
22. Upon completion of the course the student will be able to identify and interpret graphic scales.
23. Upon completion of the course the student will be able to identify and interpret verbal scales.
24. Upon completion of the course the student will be able to identify and interpret engineering scales.
25. Upon completion of the course the student will be able to identify and interpret metric scales.
26. Upon completion of the course the student will be able to make scale conversions.

Upon completion of the course the student will be able to interpret mapping symbols, legal descriptions, and plot plans.

27. Upon completion of the course the student will be able to identify and interpret relief symbols.
28. Upon completion of the course the student will be able to identify and interpret water symbols.
29. Upon completion of the course the student will be able to identify and interpret vegetation symbols.
30. Upon completion of the course the student will be able to identify and interpret feature symbols.
31. Upon completion of the course the student will be able to identify and interpret topographic symbols.
32. Upon completion of the course the student will be able to identify and interpret rocky terrain symbols.
33. Upon completion of the course the student will be able to identify and interpret depression symbols.
34. Upon completion of the course the student will be able to identify and interpret sand dune symbols.
35. Upon completion of the course the student will be able to identify and interpret a metes and bounds and bounds legal description.
36. Upon completion of the course the student will be able to identify and interpret a lot and block legal description.
37. Upon completion of the course the student will be able to identify and interpret a rectangular plot plan.
38. Upon completion of the course the student will be able to create a plot plan.
39. Upon completion of the course the student will be able to create a drawing showing rapids and whirlpool contour lines.
40. Upon completion of the course the student will be able to create a map using depression contour lines.
41. Upon completion of the course the student will be able to create contour map profiles.
42. Upon completion of the course the student will be able to interpret slope by reading contour lines.
43. Upon completion of the course the student will be able to create and assign values to contour lines.
44. Upon completion of the course the student will be able to create a contour map using a grid layout.
45. Upon completion of the course the student will be able to enlarge a contour map using Architectural Software.
46. Upon completion of the course the student will be able to create a map using profile construction techniques.
47. Upon completion of the course the student will be able to interpret profile leveling measurements to create a map.
48. Upon completion of the course the student will be able to use the plan and profile method to create a highway layout.
49. Upon completion of the course the student will be able to identify and interpret the point of a reverse curve.
50. Upon completion of the course the student will be able to calculate the length of a Curve.
51. Upon completion of the course the student will be able to calculate the delta angle on a highway layout.
52. Upon completion of the course the student will be able to interpret data and create a Drawing by analyzing data from a centerline route survey.
53. Upon completion of the course the student will be able to create a highway cut-and-fill cross sectional area.
54. Upon completion of the course the student will be able to create a site plan cut-and-Fill cross sectional area.
55. Upon completion of the course the student will be able to demonstrate knowledge of GIS and its relationship to civil drafting.
56. Upon completion of the course the student will be able to define GIS and identify its relationship to civil drafting.
57. Upon completion of the course the student will be able to identify principal GIS components.
58. Upon completion of the course the student will be able to interpret a georelational data model.
59. Upon completion of the course the student will be able to identify five GIS/Civil drafting related disciplines.
60. Upon completion of the course the student will be able to identify four spatial formats used in GIS.

ASSESSMENT OF LEARNER OUTCOMES:
Assessment methods may include, but are not limited to, the following: Homework, Assignments, Quizzes, Class Participation, Chapter Tests, and Final Exam. The grading scale and the process for calculating the course grades are to be determined by the individual instructors. This information will be included in each instructor’s syllabus.

SPECIAL NOTES:
This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student’s progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.

Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

Kansas City Kansas Community College offers equal educational opportunity to all students as well as serving as an equal opportunity employer for all personnel. Various laws, including Title IX of the Educational Amendments of 1972, require the college’s policy on non-discrimination be administered without regard to race, color, age, sex, religion, national origin, physical handicap, or veteran status and that such policy be made known.

Kansas City Kansas Community College complies with the Americans with Disabilities Act. If you need accommodations due to a documented disability, please contact the Director of the Academic Resource Center, in Rm. 3354 or call at: 288-7670.