SYLLABUS

DATE OF LAST REVIEW: 03/2017

CIP CODE: 15.1302

SEMESTER: Departmental Syllabus

COURSE TITLE: Fundamentals of MicroStation

COURSE NUMBER: ENGR-0216

CREDIT HOURS: 3

INSTRUCTOR: Departmental Syllabus

OFFICE LOCATION: Departmental Syllabus

OFFICE HOURS: Departmental Syllabus

TELEPHONE: Departmental Syllabus

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

PREREQUISITE(S):   None

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

COURSE DESCRIPTION: Designed to introduce Computer-Aided Design (CAD) using MicroStation by Bentley (tm), this course provides students with the opportunity to practice and develop proficiencies using software command syntax, CAD drawing strategies, cells libraries, and the input of numerical data.

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:
I)   Introduction
    A) History of MicroStation
    B) Hardware
    C) Software

D) The MicroStation Interface
E) MicroStation Manager
F) Design file creation-seed files-wsmod
G) Menu's and screen layout
H) Toolbars
I) Input methods
J) Settings
K) Zoom controls

II) Element Creation, Modification and Manipulation
    A) Drawing setup, paper size
    B) Grid unit, grid reference
    C) Locks
    D) Linear elements
    E) Polygons
    F) Arcs
    G) Ellipses
    H) Element selection

III) Scale Drawing Setup
    A) I-beam and concrete pad
    B) Windows copy, cut and paste
    C) Scale setup, master units, sub units, positional units
    D) Scaling parts from other drawings
    E) Array
    F) Line types, Weights, Colors
    G) Hatch patterns
    H) Dim variables, text height
    I) Title block

IV) Site and Survey Drawings
    A) Scale setup, mapping seed file
    B) Polar method of input, bearings
    C) Text settings
    D) Label line
    E) Dimension settings
    F) Cell Library-attach
    G) Placing symbols
    H) Title block

V) Floorplans
    A) Drawing setup-architecture seed
    B) Scale, paper size, grid, grid reference
    C) Mline creation
    D) Multiline joints-editing
    E) Relative method of input, sub units
    F) Dimension variables, text height
    G) Continuous dim style
    H) Window (views) utilization
    I) Title block

    J)   Reference files-to site
    K)   Accudraw, Smartline
    L)   Settings box
    M)   Coordinate system rotation
    N)   Operations options
    O)   Activating Accudraw
    P)   Cartesian coordinate input with Accudraw
    Q)   Compass
    R)   Rectangular input with Accudraw
    S)   Short cut key in's
    T)   Accudraw-tentative

VI) Multi-view Orthographic Drawings
    A)   Mechanical drawing setup
    B)   Grid unit, reference
    C)   View selection-standard engineering
    D)   Projection methods
    E)   Hidden lines, center lines, holes and edges
    F)   Dimension variables
    G)   Title block

VII)   Drawing with cells and symbols
    A)   Cell creation
        1)   Fence modes
        2)   Cell origins
        3)   Cell library creation
        4)   Attaching libraries
    B)   Scale drawing setup-electrical
    C)   Scale drawing setup-office
    D)   Scale drawing setup-wall
    E)   Placing text to scale drawings
    F)   Dimensioning
    G)   Title blocks

EXPECTED LEARNER OUTCOMES:
A. *Upon completion of the course, the student will be able to log onto the computer, activate the MicroStation software and demonstrate the ability to utilize the toolbars and menus.*
B. *Upon completion of the course, the student will be able to demonstrate proficiency using element creation, modification and manipulation commands.*
C. *Upon completion of the course, the student will be able to create, dimension and plot a scale drawing.*
D. *Upon completion of the course, the student will be able to create and complete a site, survey drawing.*
E. *Upon completion of the course, the student will be able to create a floor plan using multiple lines and editing techniques.*
F. *Upon completion of the course, the student will be able to create a mechanical and architectural drawing using Accudraw and smart lines.*

G. *Upon completion of the course, the student will be able to complete an orthographic drawing using multi-view drafting techniques.*
H. *Upon completion of the course, the student will be able to create a cell library and place symbols on electrical and office drawings.*

COURSE COMPETENCIES:
Upon completion of the course the student will be able to log onto the computer, activate the MicroStation software and demonstrate the ability to utilize the toolbars and menus.
1. Upon completion of the course the student will be able to identify MicroStation hardware requirements.
2. Upon completion of the course the student will be able to identify the MicroStation manager setup dialog box.
3. Upon completion of the course, the student will be able to create a drawing using seed files.
4. Upon completion of the course, the student will be able to identify the MicroStation menus.
5. Upon completion of the course, the student will be able to identify and customize toolbars and their location.
6. Upon completion of the course, the student will be able to apply methods of input to produce a drawing.
7. Upon completion of the course, the student will be able to set grid, grid reference utilizing traditional drafting settings.
8. Upon completion of the course, the student will be able to apply zoom controls to increase drafting production.
Upon completion of the course, the student will be able to demonstrate proficiency using element creation, modification and manipulation commands.
9. Upon completion of the course, the student will be able to demonstrate proficiency setting up a mechanical drawing.
10. Upon completion of the course, the student will be able to apply lock settings to drafting standards.
11. Upon completion of the course, the student will be able to demonstrate proficiency placing linear elements.
12. Upon completion of the course, the student will be able to demonstrate proficiency placing polygons.
13. Upon completion of the course, the student will be able to demonstrate proficiency placing arcs.
14. Upon completion of the course, the student will be able to demonstrate the ability to place ellipses.
15. Upon completion of the course, the student will be able to apply methods of element selecting objects.
16. Upon completion of the course, the student will be able to demonstrate proficiency using manipulate commands.
17. Upon completion of the course, the student will be able to demonstrate proficiency using modification commands.

Upon completion of the course, the student will be able to create, dimension and plot a scale structural drawing.
18. Upon completion of the course, the student will be able to draw an I-beam and concrete pad using smart line.
19. Upon completion of the course, the student will be able to demonstrate proficiency using windows copy and paste commands.

20. Upon completion of the course, the student will be able to demonstrate scale-drawing setup using an architectural seed file.
21. Upon completion of the course, the student will be able to demonstrate proficiency scaling parts from another drawing.
22. Upon completion of the course, the student will be able to identify methods of repeating items, copy, and array.
23. Upon completion of the course, the student will be able to demonstrate proficiency setting line types, weights and colors.
24. Upon completion of the course, the student will be able to demonstrate the ability to set dimension variables.
25. Upon completion of the course, the student will be able to create and place a title block.

Upon completion of the course, the student will be able to create and complete a site, survey drawing.
26. Upon completion of the course, the student will be able to demonstrate proficiency setting up a map drawing using a map seed file.
27. Upon completion of the course, the student will be able to identify and place lines using polar input-bearings.
28. Upon completion of the course, the student will be able to demonstrate the ability to set text height per drawing scale.
29. Upon completion of the course, the student will be able to identify and place bearings-label line.
30. Upon completion of the course, the student will be able to demonstrate placing text along elements.
31. Upon completion of the course, the student will be able to apply and place cells, North arrow, to a drawing.
32. Upon completion of the course, the student will be able to demonstrate proficiency placing cells to scale.

Upon completion of the course, the student will be able to create a floor plan using multiple lines and editing techniques.
33. Upon completion of the course, the student will be able to demonstrate proficiency setting up a scale drawing with an architectural seed file.
34. Upon completion of the course, the student will be able to demonstrate the ability to create multiple lines using mline.
35. Upon completion of the course, the student will be able to apply multiline joint editing to walls.
36. Upon completion of the course, the student will be able to demonstrate relative method of input.
37. Upon completion of the course, the student will be able to identify methods of placing feet and inches using MU and SU.
38. Upon completion of the course, the student will be able to demonstrate proficiency setting dimension variables for architectural drawings.
39. Upon completion of the course, the student will be able to apply continuous dimensions to an architectural drawing.
40. Upon completion of the course, the student will be able to apply continuous dimensions to an architectural drawing.

Upon completion of the course, the student will be able to create a mechanical and architectural drawing using Accudraw and smart lines.

41. Upon completion of the course, the student will be able to demonstrate the ability to create and set Accudraw variables for efficiency.
42. Upon completion of the course, the student will be able to identify the coordinate system rotation.
43. Upon completion of the course, the student will be able to manipulate operations options.
44. Upon completion of the course, the student will be able to demonstrate proficiency activating Accudraw drawing box.
45. Upon completion of the course, the student will be able to demonstrate the ability to utilize Cartesian coordinate input with Accudraw.
46. Upon completion of the course, the student will be able to identify methods of toggling from rectangular input to polar.
47. Upon completion of the course, the student will be able to identify Accudraw short cut key-ins.
48. Upon completion of the course, the student will be able to display the ability to utilize Accudraw-tentative placement.

Upon completion of the course, the student will be able to complete an orthographic drawing using multi-view drafting techniques.
49. Upon completion of the course, the student will be able to demonstrate proficiency setting up a mechanical multi-view drawing.
50. Upon completion of the course the student will be able to identify and set grid unit and grid reference for the multi-view drawing.
51. Upon completion of the course, the student will be able to demonstrate proficiency setting up standard engineering views.
52. Upon completion of the course the student will be able to identify projection methods for multi-view drawings.
53. Upon completion of the course the student will be able to apply hidden and centerline technology to a multi-view drawing.
54. Upon completion of the course, the student will be able to demonstrate proper drafting techniques to display holes and edges.
55. Upon completion of the course, the student will be able to identify and set dimension variables for multi-view drawings.

Upon completion of the course, the student will be able to create a cell library and place symbols on electrical and office drawings.
56. Upon completion of the course, the student will be able to identify six fence modes.
57. Upon completion of the course, the student will be able to demonstrate proficiency placing fences.
58. Upon completion of the course, the student will be able to identify cell origin and placement.
59. Upon completion of the course, the student will be able to demonstrate the ability to create a cell library.
60. Upon completion of the course, the student will be able to identify and setup a scale drawing-electrical.
61. Upon completion of the course, the student will be able to identify and setup a scale drawing-office.
62. Upon completion of the course, the student will be able to demonstrate proficiency placing cells at various scales.

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 disabilities services office at (913) 288 -7664.

All enrolled students at Kansas City Kansas Community College are subject to follow all rules, conditions, policies and procedures as described in both the Student Code of Conduct as well as the Student Handbook. All Students are expected to review both of these documents and to understand their responsibilities with regard to academic conduct and policies. The Student Code of Conduct and the Student Handbook can be found on the KCKCC website.