

Engineering Graphics

Course Goals

The following list of course goals will be addressed in the course. These goals are directly related to the performance objectives (Addendum A). (*designates a CRUCIAL goal)

1. list engineering careers
2. (8) demonstrate instrument safety
3. (7) define communication, graphic, plane, line, terms
4. define abstract, aesthetic, functional design
5. list seven steps engineering design process
6. describe ergonomic design concepts
7. compare sketch, engineering, architectural, rendering drawing
8. use vertical Gothic letters
9. (8) identify Leroy lettering set
10. (8) use ames lettering guide
11. identify object, hidden, center, extension lines
12. use architectural, engineering, metric scales
13. (14) list and describe drafting tools
14. draw perpendicular, parallel, tangent, lines
15. (7) draw standard title blocks
16. (7) draw ANSI standard borders
17. define orthographic projection
18. define pictorial drawing
19. (17) draw orthographic views
20. identify dimension, section, cutting plane, construction lines
21. draw object, hidden, center, extension lines
22. draw dimension, section, cutting plane, construction lines
23. bisect geometric construction
24. (44) complete section drawing
25. (37) center three view drawings
26. (68) list lead hardness
27. (68) list pen sizes
28. describe paper, vellum, film differences
29. explain diazo process
30. (28) list standard sizes of paper
31. apply estimation, proportion principles
32. sketch two-dimensional, three-dimensional shapes
33. (32) apply shading techniques
34. (17) identify six principle orthographic views
35. describe unidirectional, aligned dimensions
36. (49) construct height, width, depth dimensions
37. complete isometric, oblique, perspective drawings
38. (49) list three principle planes
39. (44) apply auxiliary view method
40. describe dihedral angle
41. (42) describe cutting plane purpose
42. describe cutting plane line
43. describe full, half, revolved, aligned section
44. draw ANSI standard section lines
45. (43) describe offset, removed, broken out section
46. compare one, two point perspective
47. describe isometric, oblique, dimetric/trimetric drawing
48. (32) compare oblique, axonometric, and perspective projection

49. draw isometric, oblique, perspective drawings
50. define shear, moment, compression, tension terms
51. describe concurrent, coplanar forces
52. compute vector analysis problems
53. describe equilibrium term
54. describe motion, displacement, path, velocity terms
55. (68) define kinematic, mechanism, term
56. (68) list linkages applications
57. (58) list gear types
58. describe gear tooth parts
59. (68) identify cams and cam follower applications
60. use gear tooth template
61. (68) describe linkages application
62. (68) identify graph uses
63. (67) describe and list personal computer hardware
64. (67) use basic DOS commands
65. (67) identify digitizer, mouse, plotter hardware
66. (67) explain CAD, CADD, CAM, meaning
67. use AutoCAD software
68. demonstrate engineering graphics content command

ADDENDUM A

PERFORMANCE OBJECTIVES

1. The student will be allowed references. The student will list engineering careers. Performance will be satisfactory if careers are listed and the listing is consistent with any related published documents.
4. The student will be allowed references. The student will define abstract, aesthetic, and functional design. Performance will be satisfactory if all designs are defined and the definitions are consistent with the text.
5. The student will be allowed references. The student will list seven steps in the engineering design process. Performance will be satisfactory if all design processes are listed and the listing is consistent with the text and seven design processes are listed.
6. The student will be allowed references. The student will describe the ergonomic design concept. Performance will be satisfactory if the concept is described and the description is consistent with the text.
7. The student will be allowed references. The student will compare sketch, engineering, architectural, and rendering drawings. Performance will be satisfactory if drawings are compared and the comparison is consistent with the text. The following Content Goals are related to this PO : 3, 7, 15, and 16.
8. The student will be allowed references. The student will use ANSI letters. Performance will be satisfactory if letters are used and the usage is consistent with examples and all letters are used in all conditions and usage conforms to examples. The following Content Goals are related to this PO : 2, 8, 9, and 10.
11. The student will be allowed references. The student will identify object, hidden, center, and extension lines. Performance will be satisfactory if all lines are identified and the identification is consistent with the text.
12. The student will be allowed references. The student will use architectural, engineering, and metric scales. Performance will be satisfactory if the scales are used and the usage is consistent with the text and all scales are used and usage conforms to the standards set by the instructor.
14. The student will be allowed references. The student will be provided tools. The student will draw perpendicular, parallel, tangent objects. Performance will be satisfactory if objects are drawn and the drawings are consistent with work order and examples provided. The following Content Goals are related to this PO : 13, 14.
17. The student will be allowed references. The student will define orthographic projection. Performance will be satisfactory if orthographic projection is defined and the definition is consistent with the text and the definition conforms to the standard set by the instructor. The following Content Goals are related to this PO : 17, 19, and 34.
18. The student will be allowed references. The student will identify dimension, section, cutting plane, construction lines. Performance will be satisfactory if the lines are identified and the identification is consistent with the text and all lines are identified and identification conforms to the standard set by the instructor.

20. The student will be allowed references. The student will identify dimension, section, cutting plane, and construction lines. Performance will be satisfactory if the lines are identified and the identification is consistent with the text.
21. The student will be allowed references. The student will be provided tools. The student will draw object, hidden, center, extension lines. Performance will be satisfactory if lines are drawn and the drawing is consistent with work order example.
22. The student will be allowed references. The student will be provided tools. The student will draw dimension, section, cutting plane, construction lines. Performance will be satisfactory if lines are drawn and the drawing is consistent with text and examples provided.
23. The student will be allowed references. The student will be provided tools. The student will bisect geometric construction. Performance will be satisfactory if construction is bisected and the construction is consistent with text and examples provided.
28. The student will be allowed references. The student will describe paper, vellum, and film differences. Performance will be satisfactory if differences are described and the descriptions are consistent with the text and handouts. The following Content Goals are related to this PO : 28, 30.
29. The student will be allowed references. The student will explain the diazo process. Performance will be satisfactory if the process is explained and the explanation is consistent with the text.
31. The student will be allowed references. The student will apply estimation, proportion principles. Performance will be satisfactory if principles are applied and the application is consistent with text and examples provided.
32. The student will be allowed references. The student will be provided tools. The student will sketch two-dimensional, three-dimensional shapes. Performance will be satisfactory if shapes is/are sketched and the sketch is/are consistent with (some text). The following Content Goals are related to this PO : 32, 33, and 48.
35. The student will be allowed references. The student will describe unidirectional, and aligned dimensions. Performance will be satisfactory if dimensions are described and the descriptions are consistent with the text.
37. The student will be allowed references. The student will be provided tools. The student will complete isometric, oblique, perspective drawings. Performance will be satisfactory if drawings are completed and the completion is consistent with work order and examples provided. The following Content Goals are related to this PO : 25, 37.
40. The student will be allowed references. The student will describe the dihedral angle. Performance will be satisfactory if the angle is described and the description is consistent with the text.
42. The student will be allowed references. The student will describe a cutting plane line. Performance will be satisfactory if the line is described and the description is consistent with the text. The following Content Goals are related to this PO : 41, 42.
43. The student will be allowed references. The student will describe full, half, revolved, and aligned section views. Performance will be satisfactory if the sections are described and the descriptions are consistent with the text. The following Content Goals are related to this PO : 43, 45.

44. The student will be allowed references. The student will be provided tools. The student will draw ANSI standard section lines. Performance will be satisfactory if lining is/are drawn and the drawing is/are consistent with (some text). The following Content Goals are related to this PO : 24, 39, and 44.
46. The student will be allowed references. The student will compare one, and two point perspective drawings. Performance will be satisfactory if the perspective drawings are compared and the comparison is consistent with the text.
47. The student will be allowed references. The student will describe isometric, oblique, and dimetric/trimetric drawing. Performance will be satisfactory if drawings are described and the descriptions are consistent with the text.
49. The student will be allowed references. The student will be provided tools. The student will draw isometric, oblique, perspective drawings. Performance will be satisfactory if drawings are drawn and the drawing is consistent with text and work order and examples provided. The following Content Goals are related to this PO : 36, 38, and 49.
50. The student will be allowed references. The student will define shear, moment, compression, and tension terms. Performance will be satisfactory if terms are defined and the definitions are consistent with the text.
51. The student will be allowed references. The student will describe concurrent, and coplanar forces. Performance will be satisfactory if forces are described and the descriptions are consistent with the text.
52. The student will be allowed references. The student will compute vector analysis problems. Performance will be satisfactory if problems are computed and the computation is consistent with the text and ten problems are computed in 50 minutes and computation conforms to the textbook.
53. The student will be allowed references. The student will describe equilibrium term. Performance will be satisfactory if the term is described and the description is consistent with the text.
54. The student will be allowed references. The student will describe motion, displacement, path, and velocity terms. Performance will be satisfactory if the terms are described and the descriptions are consistent with the text.
58. The student will be allowed references. The student will describe gear tooth parts. Performance will be satisfactory if parts are described and the description conforms to the text and handouts. The following Content Goals are related to this PO : 57, 58.
60. The student will be allowed references. The student will be provided tools. The student will use a gear tooth template. Performance will be satisfactory if template is used and the usage is consistent with text and examples provided.
67. The student will be allowed references. The student will be provided tools. The student will use AutoCAD software. Performance will be satisfactory if the software is used and the usage is consistent with the text. The following Content Goals are related to this PO : 63, 64, 65, 66, and 67.
68. The student will be a member of ENG100. The student will demonstrate engineering graphics content command. Performance will be satisfactory if command is demonstrated consistent with the text or handouts provided by the instructor. Traditional testing will be used to determine proficiency. The following Content Goals are related to this PO : 26, 27, 55, 56, 59, 61, 62, and 68.

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