ILLINOIS VALLEY COMMUNITY COLLEGE

COURSE OUTLINE

DIVISION: Workforce Development

COURSE: **CAD 1206; Descriptive Geometry**

Date: Spring 2015

Credit Hours: 3

Prerequisite(s):   DFT 1200 or High School drafting or drafting experience

Delivery Method: ☒ **Lecture**   **2 Contact Hours** (1 contact = 1 credit hour)

☐ **Seminar**   **0 Contact Hours** (1 contact = 1 credit hour)

☒ **Lab**   **2 Contact Hours** (2 contact = 1 credit hour)

☐ **Clinical**   **0 Contact Hours** (3 contact = 1 credit hour)

☐ **Online**

☐ **Blended**

Offered: ☒ **Fall**   ☒ **Spring**   Summer

IAI Equivalent –*Only for Transfer Courses*-go to *http://www.itransfer.org*:

CATALOG DESCRIPTION:
This class will deal with descriptive geometry, the graphical representation and solution of spatial relationships of points, lines, and planes by means of projections. The drafter will under¬stand the various steps to graphically solve problems with points, lines, and planes, piercing points and apply descriptive geometry to various drafting problems. This class will deal with vectors and the terms and problems associated with them. Also, the drafter will learn surface development patterns for the bending or folding of material to a required shape.

GENERAL EDUCATION GOALS ADDRESSED

[See the last page of this form for more information.]

Upon completion of the course, the student will be able:

[Choose those goals that apply to this course.]

☒ To apply analytical and problem solving skills to personal, social and
  professional issues and situations.

☒ To communicate orally and in writing, socially and interpersonally.

☐ To develop an awareness of the contributions made to civilization by
  the diverse cultures of the world.

☒ To understand and use contemporary technology effectively and to
  understand its impact on the individual and society.

☒ To work and study effectively both individually and in collaboration with
  others.

☒ To understand what it means to act ethically and responsibly as an
  individual in one's career and as a member of society.

☐ To develop and maintain a healthy lifestyle physically, mentally, and
  spiritually.

☒ To appreciate the ongoing values of learning, self-improvement, and
  career planning.

EXPECTED LEARNING OUTCOMES AND RELATED COMPETENCIES:

[Outcomes related to course specific goals.]

Upon completion of the course, the student will be able to:

1.   Given concepts of descriptive geometry, students will:
  A.   Project lines into other views
  B.   Project points into other views
  C.   Determine true length of line
  D.   Determine point view of a line
  E.   Find true distance between a line and a point in space
  F.   Determine true distance between two lines in space
  G.   Project a plane surface in space
  H.   Developing an edge view of a plane in space
  I.   Determining the true distance between a plane surface and a point in space
  J.   Determine the true angle between plane surfaces in space
  K.   Establish parallel lines in space
  L.   Establish perpendicular lines in space
  M.   Establish a line parallel to a plane in space
  N.   Establish a line perpendicular to a plane in space

2.   Students will learn to make a development pattern or template in a single flat plane in
     preparation for the bending or folding of a material to a required shape by means of:
  A.   Parallel line development
  B.   Radial line development
  C.   Triangulation development

3. Students will construct true length diagrams, notches, and calculate bend radius.

COURSE TOPICS AND CONTENT REQUIREMENTS:

1. Students will be introduced to principles of descriptive geometry
2. Student will reinforce the concepts of Auxiliary views
3. Students will be taught the importance of Fold lines and principles planes
4. Students will perform Visibility problems
5. Student will be review and reinforce principles concerning Points, lines, and planes
6. Students will be introduced to concepts of Bearing and Slope
7. Students will be introduced to concepts of Parallelism and Perpendicularity
8. Students will learn concepts and reinforce principles of Piercing Points
9. Theories of Vectors will be introduced and student will perform problems concerning them
10. Concepts of Developments will be discussed
11. Problems in developments will be performed by students including:
    - Parallel line developments
    - Radial line developments
    - Triangulation development
    - True length diagram
    - Bend calculations

Intermediate Essential Workplace Skills
1. Able to read, create and interpret technical reports and manuals
2. Able to use effective oral communication skill with small group interaction
3. Able to understand and apply basic math skills appropriate to coursework
4. Able to understand and apply appropriate written communication skills appropriate to coursework
5. Able to use effective oral communication skill by presenting an oral technical report
6. Student can define a drug free and alcohol free work environment
7. Able to correlate studies of course related materials using reasoning and logic
8. Able to use problem solving skill to complete project based assignments
9. Able to apply life application skills relating to coursework and job seeking
10. Able to identify core values and how to apply them
11. Able to apply technical skills to course related projects and activities
12. Able to apply teamwork skills while participating in small and large group activities
13. Able to apply life application skills relating to coursework and job seeking
14. Able to identify core values and how to apply them
15. Understand validity of goal setting
16. Use goal setting skills in project based activities
17. Learn and appropriate self management skills; promptness, time management, hygiene, self control
18. Able to use mental processes of discernment analyze and evaluate all process in order to form a judgment to make a recommendation
19. Learn to recognize and develop personal leadership qualities
20. Understand validity of teamwork skills in large and small group settings
21. Able to be challenged to hear, understand and reinterpret communication from
22. Students will be exposed to opportunities to build self worth and confidence

INSTRUCTIONAL METHODS:
Lecture
Lab
Group Projects

INSTRUCTIONAL MATERIALS:
Descriptive Geometry, Holiday-Darr

STUDENT REQUIREMENTS AND METHODS OF EVALUATION:

Completion of assigned problems, required reading of text.
Periodic tests.
Group Projects
Problem Based Learning

OTHER REFERENCES

Course Competency/Assessment Methods Matrix

CAD 1206; Descriptive Geometry	Assessment of Student Learning	Assessment Options																														
For each competency/outcome place an "X" below the method of assessment to be used.		Article Review	Case Studies	Group Projects	Lab Work	Oral Presentations	Pre-Post Tests	Quizzes	Written Exams	Artifact Self Reflection of Growth	Capstone Projects	Comprehensive Written Exit Exam	Course Embedded Questions	Multi-Media Projects	Observation	Writing Samples	Portfolio Evaluation	Real World Projects	Reflective Journals	Applied Application (skills) Test	Oral Exit Interviews	Accreditation Reviews/Reports	Advisory Council Feedback	Employer Surveys	Graduate Surveys	Internship/Practicum /Site Supervisor Evaluation	Licensing Exam	In Class Feedback	Simulation	Interview	Written Report	Assignment
Assessment Measures – Are direct or indirect as indicated. List competencies/outcomes below.	Direct/ Indirect	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	_	_	_		D	D	D						
1. Given concepts of descriptive geometry, students will: Project lines into other views		X	X	X	X		X		X		X		X		X		X		X		X							X				X
1B. Given concepts of descriptive geometry, students will: Project points into other views		X	X	X	X		X		X		X		X		X		X		X		X							X				X
1C. Given concepts of descriptive geometry, students will: Determine true length of line		X	X	X	X		X		X		X		X		X		X		X		X							X				X
1D. Given concepts of descriptive geometry, students will: Determine point view of a line		X	X	X	X		X		X		X		X		X		X		X		X							X				X
1E. Given concepts of descriptive geometry, students will: Find true distance between a line and a point in space		X	X	X	X		X		X		X		X		X		X		X		X							X				X
1F. Given concepts of descriptive geometry, students will: Determine true distance between two lines in space		X	X	X	X		X		X		X		X		X		X		X		X							X				X

CAD 1206; Descriptive Geometry	Assessment Options																														
For each competency/outcome place an "X" below the method of assessment to be used.	Assessment of Student Learning	Article Review	Case Studies	Group Projects	Lab Work	Oral Presentations	Pre-Post Tests	Quizzes	Written Exams	Artifact Self Reflection of Growth	Capstone Projects	Comprehensive Written Exit Exam	Course Embedded Questions	Multi-Media Projects	Observation	Writing Samples	Portfolio Evaluation	Real World Projects	Reflective Journals	Applied Application (skills) Test	Oral Exit Interviews	Accreditation Reviews/Reports	Advisory Council Feedback	Employer Surveys	Graduate Surveys	Internship/Practicum /Site Supervisor Evaluation	Licensing Exam	In Class Feedback	Simulation	Interview	Written Report	Assignment
Assessment Measures – Are direct or indirect as indicated. List competencies/outcomes below.	Direct/ Indirect	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	I	I	I	I	D	D						
1G. Given concepts of descriptive geometry, students will: Project a plane surface in space		X	X	X	X		X		X		X		X		X		X		X		X							X				X
1H. Given concepts of descriptive geometry, students will: Developing an edge view of a plane in space		X	X	X	X		X		X		X		X		X		X		X		X							X				X
1I. Given concepts of descriptive geometry, students will: Determining the true distance between a plane surface and a point in space		X	X	X	X		X		X		X		X		X		X		X		X							X				X
1J. Given concepts of descriptive geometry, students will: Determine the true angle between plane surfaces in space		X	X	X	X		X		X		X		X		X		X		X		X							X				X
1K. Given concepts of descriptive geometry, students will: Establish parallel lines in space		X	X	X	X		X		X		X		X		X		X		X		X							X				X
1L. Given concepts of descriptive geometry, students will: Establish perpendicular lines in space		X	X	X	X		X		X		X		X		X		X		X		X							X				X

CAD 1206; Descriptive Geometry	Assessment Options																														
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Assessment Measures – Are direct or indirect as indicated. List competencies/outcomes below.	Direct/ Indirect	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	_	_	_	_	D	D						
1M. Given concepts of descriptive geometry, students will: Establish a line parallel to a plane in space		X	X	X	X		X		X		X		X		X		X		X		X							X				X
1N. Given concepts of descriptive geometry, students will: Establish a line perpendicular to a plane in space		X	X	X	X		X		X		X		X		X		X		X		X							X				X
2A. Students will learn to make a development pattern or template in a single flat plane in preparation for the bending or folding of a material to a required shape by means of: Parallel line development		X	X	X	X		X		X		X		X		X		X		X		X							X				X
2B. Students will learn to make a development pattern or template in a single flat plane in preparation for the bending or folding of a material to a required shape by means of: Radial line development		X	X	X	X		X		X		X		X		X		X		X		X							X				X

CAD 1206; Descriptive Geometry — Assessment Options

For each competency/outcome place an "X" below the method of assessment to be used.

Assessment Measures – Are direct or indirect as indicated. List competencies/outcomes below.	Direct/ Indirect	Article Review	Case Studies	Group Projects	Lab Work	Oral Presentations	Pre-Post Tests	Quizzes	Written Exams	Artifact Self Reflection of Growth	Capstone Projects	Comprehensive Written Exit Exam	Course Embedded Questions	Multi-Media Projects	Observation	Writing Samples	Portfolio Evaluation	Real World Projects	Reflective Journals	Applied Application (skills) Test	Oral Exit Interviews	Accreditation Reviews/Reports	Advisory Council Feedback	Employer Surveys	Graduate Surveys	Internship/Practicum /Site Supervisor Evaluation	Licensing Exam	In Class Feedback	Simulation	Interview	Written Report	Assignment
		D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	I	I	I	I	D	D						
2C. Students will learn to make a development pattern or template in a single flat plane in preparation for the bending or folding of a material to a required shape by means of: Triangulation development		X	X	X	X	X		X	X			X		X		X			X	X								X				X
3. Students will construct true length diagrams, notches, and calculate bend radius.		X	X	X	X	X		X	X			X		X		X			X	X								X				X