NEOSHO COUNTY COMMUNITY COLLEGE
MASTER COURSE SYLLABUS

COURSE IDENTIFICATION

Course Code/Number: ETEC 122

Course Title: Engineering Graphics II

Division: [x] Applied Science (AS) [ ] Liberal Arts (LA) [ ] Workforce Development (WD)
[ ] Health Care (HC) [ ] Lifetime Learning (LL) [ ] Nursing [ ] Developmental

Credit Hour(s): Three (3)

Effective Date: Fall 2013

Assessment Goal Per Outcome: 70%

COURSE DESCRIPTION

This is a continuation of Engineering Graphics I, ETEC121. This course presents a further development of planes, angles between lines and planes, orthographic projections to include descriptive geometry principles, auxiliary views, oblique views, developments and transitions.

MINIMUM REQUIREMENTS/PREREQUISITES AND/OR COREQUISITES

Engineering Graphics I, ETEC121

TEXTS

The official list of textbooks and materials for this course is found on *my*Neosho.

http://www.neosho.edu/ProspectiveStudents/Registration/CourseSyllabi.aspx

GENERAL EDUCATION OUTCOMES

1. Practice Responsible Citizenship through:

- identifying rights and responsibilities of citizenship,
- identifying how human values and perceptions affect and are affected by social diversity,
- identifying and interpreting artistic expression.

2. Live a healthy lifestyle (physical, intellectual, social) through:
   - listing factors associated with a healthy lifestyle and lifetime fitness,
   - identifying the importance of lifetime learning,
   - demonstrating self-discipline, respect for others, and the ability to work collaboratively as a team.
3. Communicate effectively through:
   - developing effective written communication skills,
   - developing effective oral communication and listening skills.
4. Think analytically through:
   - utilizing quantitative information in problem solving,
   - utilizing the principles of systematic inquiry,
   - utilizing various information resources including technology for research and data collection.

COURSE OUTCOMES/COMPETENCIES (as Required)

Manufacturing Processes

1. Identify purposes of manufacturing Processes.
2. Identify types of drawings.
3. Identify casting terms.
4. List drawing procedures for casting.
5. Identify drawing procedures for a forging.
6. List drawing procedures for a welding assembly.
7. Identify sheetmetal processing.
8. Identify sheetmetal hems, joints and bends.
9. Construct a casting drawing.
10. Construct a forging drawing.
11. Construct a welding drawing.
12. Construct a thermoplastic drawing.
13. Construct a sheetmetal layout drawing.
14. Construct a metal stamping drawing.

Development and Intersections

1. Construct auxiliary views.
2. Develop true line length and true sizes of three - view drawings.
3. Identify both point views of lines and edge views of planes.
4. Locate intersections of surfaces.
5. Identify types of developments.
6. Calculate bend allowance.
7. Label points, lines, and planes in views.
8. Identify true line lengths and types.
9. Identify true sizes and types of planes.
10. Construct lengths of lines and true sizes of planes using auxiliary views.
11. Construct true lengths of lines by rotation.
12. Construct true sizes of planes by rotation.

13. Locate elements of single curved surfaces.
14. Construct intersections of surfaces.
15. Construct intersections of surfaces using two-view method.
16. Construct parallel line developments.
17. Construct special developments using prisms.
18. Demonstrate characteristics of rotation.
19 Identify elements of a single curved surfaces.

Gears and Cams

1. Identify types of gears
2. Identify parts of gear teeth
3. List cutting data needed for spur gear drawings.
4. Identify parts of a bevel gear.
5. List cutting data needed for bevel gear.
6. List cutting data needed for worm and worm wheel.
7. Identify types of bearings.
8. Identify types of couplings.
9. Construct various gear drawings.
10. Identify types of cams.
11. Identify types of cam followers.
12. Identify types of cam motions.
13. Construct a cam drawing.

Computer Aided Design

1. Demonstrate the ability to change viewpoints in the x,y,z planes.
2. Demonstrate the ability to set the user coordinate systems.
3. Demonstrate the ability to draw on frontal, horizontal, and profile planes.
4. Demonstrate the ability to create drawings on the CAD system using the various input devices (keyboard, digitizer, mouse, etc.)
5. Identify views form viewpoint settings.
6. Demonstrate the ability to select and load autocad lisp routines.
7. Demonstrate the ability to print or plot drawing to scale.
8. Demonstrate the ability to locate points and lines on a 3d plane.
9. Construct drawings using autocad wire format functions.
10. Construct drawings using the advanced modeling systems in autocad.

MINIMUM COURSE CONTENT

I. INTRODUCTORY BASICS

A. Review of Engineering Graphics I
B. Using the workbook with the text
C. Integrating drawings with computers
D. Outside reading's
E. Lab times
F. Evaluation of skills
G. Equipment needed.

II. MATERIAL AND PROCESSES
- A. Commonly Used Materials
- B. Properties of Metal
- C. Forming Metal Shapes
- D. Machining Operations
- E. Surface Finishing
- F. Plastics and Other Materials.

III. GEARS AND CAMS
- A. Spur Gear
- B. Bevel Gears
- C. Worm Gears
- D. Cams

IV. WORKING DRAWING
- A. Legal Document
- B. Dimensions and Units
- C. Laying out Detail Drawings
- D. Notes and Other Information
- E. Checking a Drawing
- F. Drafters Log
- G. Assembly Drawings
- H. Freehand Working Drawings
- I. Working Drawings for Forged Parts and Castings.

V. POINTS, LINES, AND PLANES
- A. Projection of Points
- B. Lines
- C. Visibility
- D. Planes
- E. Parallelism
- F. Perpendicularity.

VI. PRIMARY AUXILIARY VIEWS IN DESCRIPTIVE GEOMETRY
- A. Descriptive Geometry by Computer
- B. True Length Lines
- C. Angles between Lines and Principal Planes
- D. Sloping Lines
- E. Bearing and Azimuths of Lines
- F. Applications: Plot Plans
- G. Contour Maps and Profiles
- H. Plan - Profiles
- I. Edge Views of Planes
- J. Planes and lines
- K. Slope Planes

L. Ore - Vein Applications
M. Intersection between Planes.

VII. SUCCESSIVE AUXILIARY VIEWS
A. Dihedral Angles
B. True Size of a Plane
C. Shortest Distance from a Point to a Line:
1. Line method
2. Skewed Method and Plane Method
D. Shortest Level Distance between Skewed Lines
E. Shortest Grade Distance between Skewed Lines
F. Angular Distance to a Line
G. Angle between a Line and a Plane:
1. Plane Method
2. Line Method.

VIII. REVOLUTION
A. True-Length Lines
B. Angles with a Line and Principal Planes
C. Angle between Planes
D. Revolution About an Axis
E. A line at a Specified Angle with Tow Principal Planes.

IX. INTERSECTIONS AND DEVELOPMENTS
A. Intersections of Lines and Planes
B. Intersections between Prisms
C. Intersections between Planes and Cylinders
D. Intersections between Cylinders and Prisms
E. Intersections between Two Cylinders
F. Intersections between Planes and Cones
G. Intersections Between Cones and Prisms
H. Intersections between Prisms and Pyramids
I. Principles of Development
J. Development of Rectangular Prisms
K. Development Oblique Prisms
L. Development of Cylinders
M. Development of Oblique Cylinders
N. Development of Cones
O. Development of Transition Pieces.

X. THREE - DIMENSIONAL CAD DRAWINGS
A. Computer 3D Graphics
B. Coordinates
C. Viewpoints
D. Scale
E. Axis: X,Y,Z, Surfacing.

STUDENT REQUIREMENTS AND METHOD OF EVALUATION

INSTRUCTIONAL METHODS

1. Lecture and discussion will be used in presentation of concepts, information and assignment requirements.
2. Demonstrations of assignments will be presented on the drafting machines and computers.
3. Lab time will be provided for drafting assignments on the drafting machines and CAD.
4. Outside assignments will consist of reading and completion of worksheets.
5. Illustrations will be presented on the chalkboard, overhead projector, audio-visuals and computer network. Handouts, mock-ups, models or charts will be used to clarify problems.

STUDENT REQUIREMENTS

1. Concepts will be evaluated through the use of workbook, periodic tests, and computer drawings.
2. Worksheets and drawings will be scored according to format requirements for style and accuracy.
3. Points will be assigned and accumulated for each worksheet, test, and computer application.

GRADING SCALE

Grades will be determined according to the following scale:

91% to 100% = A; 81% to 90 = B; 71% to 80% = C; 61% to 70% = D; 0% to 60% = F

ASSESSMENT OF STUDENT GAIN

The purpose of assessing student learning at Neosho County Community College is to ensure the educational purposes of the institution are met and appropriate changes are made in program development and classroom instruction to allow for student success.

Pre-assessment ideally begins during the advisement and enrollment process prior to the beginning of the course where the advisor and student determine through the interview process the level of placement for the student. During the period of the first two weeks of a normal semester, each student will be observed and/or interviewed and initial papers produced will be examined to determine needed competency development throughout the course. Post-assessment to determine gain in competency will be measured at the end of each unit of study.

Attendance Policy

1. NCCC values interactive learning which promotes student engagement in the learning process. To be actively engaged, the student must be present in the learning environment.

2. Unless students are participating in a school activity or are excused by the instructor, they are expected to attend class. If a student's absences exceed one-eighth of the total course duration, (which equates to one hundred (100) minutes per credit hour in a face-to-face class) the instructor has the right, but is not required, to withdraw a student from the course. Once the student has been dropped for excessive absences, the registrar's office will send a letter to the student, stating that he or she has been dropped. A student may petition the chief academic officer for reinstatement by submitting a letter stating valid reasons for the absences within one week of the registrar's notification. If the student is reinstated into the class, the instructor and the registrar will be notified. Please refer to the Student Handbook/Academic Policies for more information

3. Absences that occur due to students participating in official college activities are excused except in those cases where outside bodies, such as the State Board of Nursing, have requirements for minimum class minutes for each student. Students who are excused will be given reasonable opportunity to make up any missed work or receive substitute assignments from the instructor and should not be penalized for the absence. Proper procedure should be followed in notifying faculty in advance of the student's planned participation in the event. Ultimately it is the student's responsibility to notify the instructor in advance of the planned absence.

ACADEMIC INTEGRITY

NCCC expects every student to demonstrate ethical behavior with regard to academic pursuits. Academic integrity in coursework is a specific requirement. Definitions, examples, and possible consequences for violations of Academic Integrity, as well as the appeals process, can be found in the College Catalog, Student Handbook, and/or Code of Student Conduct and Discipline.

ELECTRONIC DEVICE POLICY

Student cell phones and other personal electronic devices not being used for class activities must not be accessed during class times unless the instructor chooses to waive this policy.

NOTE

Information and statements in this document are subject to change at the discretion of NCCC. Students will be notified of changes and where to find the most current approved documents.

ACCOMMODATIONS

If you are a student with a disability who may need accommodation(s), in compliance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990, please notify the Dean of Student Services in the Student Services Office, Sanders Hall, 620-432-0304, on the Chanute Campus, or the Dean for the Ottawa and Online Campuses, 785-248-2798, on the Ottawa Campus as

soon as possible. You will need to bring your documentation for review in order to determine reasonable accommodations, and then we can assist you in arranging any necessary accommodations.

NON-DISCRIMINATION POLICY

The following link provides information related to the non-discrimination policy of NCCC, including persons with disabilities. Students are urged to review this policy.

http://www.neosho.edu/Departments/NonDiscrimination.aspx

SEXUAL MISCONDUCT POLICY (TITLE IX)

At NCCC, it is the responsibility of an instructor to help create a safe learning environment in the classroom, including both physical and virtual classrooms. All instructors are considered mandatory reporters at NCCC, therefore any information regarding sexual misconduct that is shared by a student in one-on-one meetings with the instructor must be reported to appropriate personnel at the College. Instructors will keep the information private to the greatest extent possible, but it is not confidential. Generally, climate surveys, classroom writing assignments or discussions, human subjects research, or events such as Take Back the Night events do not provide notice that must be reported to the Coordinator by employees, unless the reporting party clearly indicates that they wish a report to be made.

The following link provides information related to the sexual misconduct policy of NCCC, including resources, reporting options, and student rights. Students are urged to review this policy.

http://www.neosho.edu/TitleIX.aspx

COURSE NOTES