DRAF 212 Structural Drafting
Credit Hours: 3
Scheduled hours per week
Lecture: 3
Lab: 0
Other: 0

Catalog Course Description: Design and checking of suitable steel sections to be used as beams, girders, lintels, columns, and struts; design of simple frames; long joists; design of timber beams, girders, columns and wood floors. Different types of fasteners are discussed and vector diagrams employed to solve force leads of various members of a frame.

Pre-requisites: DRAF 102 or DRAF 111 or DRAF 314

Co-requisites: None

Course Learning Outcomes:
To assure anyone wishing to create structural drawings using steel, concrete or timber, the means of and the knowledge of the language of visual communication and the skills to produce them.

- To understand the language and terminology used in structural design.
- To be able to design framed beams, seated beams, columns and hoists.
- To be able to calculate sizes, strengths etc., using steel charts from the American Institute of Steel Construction.
- To be able to identify the different fasteners used in steel construction.
- To be able to draw orthographic views on the system.
- To be able to draw multi-color views using AutoCAD software.
- Use accuracy and neatness, and speed in producing all required drawings.

Topics to be studied:

- Study of steel charts
- Structural shapes
- Bill of materials
- Stresses, deformations and deflections
- Fasteners
- Seated beams
- Framed beams
- Columns and clips
- Hoists
- Precast concrete

Relationship of Course to Program Learning Outcomes:	
Create two and three-dimensional drawings using AuotCAD, Microstation, Inventor, Revit, and 3D Studio Max.	X
Create three-dimensional animations and walkthroughs using AutoCAD, Revit, Inventor and 3D Studio Max.	
Apply arithmetic, algebraic, and trigonometric calculations in solving basic design problems.	X
Apply physics to solve mechanical design problems.	X
Understand by verbal and visual means the design of drawings and models.	X
Understand in writing to fellow coworkers and customer of any comments and concerns	X

Relationship of Course to General Education Learning Outcomes:	
Composition and Rhetoric Students illustrate a fundamental understanding of the best practices of communicating in English and meet the writing standards of their college or program-based communication requirements.	X
Science & Technology Students successfully apply systematic methods of analysis to the natural and physical world, understand scientific knowledge as empirical, and refer to data as a basis for conclusions.	
Mathematics & Quantitative Skills Students effectively use quantitative techniques and the practical application of numerical, symbolic, or spatial concepts.	X
Society, Diversity, & Connections Students demonstrate understanding of and a logical ability to successfully analyze human behavior, societal and political organization, or communication.	
Human Inquiry & the Past Students interpret historical events or philosophical perspectives by identifying patterns, applying analytical reasoning, employing methods of critical inquiry, or expanding problem-solving skills.	X
The Arts & Creativity Students successfully articulate and apply methods and principles of critical and creative inquiry to the production or analysis of works of art.	
5/3/2016	

Special requirements of the course:

Additional information:

Prepared by: Callix Miller 10/20/17

Date: 10/20/17