7/2/2025	DATE	TEC	DIVISION
☑	REQUIRED COURSE	☐	NEW COURSE
☐	ELECTIVE COURSE	☑	REVISION

Lake Land College

Course Information Form

COURSE NUMBER:	TEC 103	TITLE: *(30 Characters Max)*	Engineering Graphics

SEM CR HRS:	3.0	Lecture:	1.0	Lab:	5.0	ICCB Lab:	5.0	ECH:	6.0
Course Level:	☑ Gen Ed/IAI ☐ Baccalaureate/Non-IAI	☐ Career/Technical ☐ Dev Ed/ Not in Degree Audit		Clinical Practicum:	0.0	Work-based Learning	0.0	WBL ECH:	0.0
COURSE PCS and CIP:	11 - 15.1302		IAI Code:	EGR 941		Contact Hours (Minutes/Week)			
Repeatable (Y/N):	N	Pass/Fail (Y/N):	N	Variable Credit (Y/N):	N	Min:		Max:	
16 Wks	300	8 Wks	600						

Prerequisites:	None
Corequisites:	None
Catalog Description: (40 Word Limit)	This course provides an introduction to engineering design and graphics, including design problems, sketching, dimensioning, tolerancing, multi-view orthographic representations, auxiliary views, section views and working drawings. Drafting equipment and workbook are required. CAD software is used in this course.

List the Major Course Segments (Units)	Contact Lecture Hours	Contact Lab Hours	Clinical Practicum	Work-based Learning
Introduction to engineering graphics and design process	1.5			
Lettering, line types and line weights	1	2.5		
Sketching	0.5	3		
Architectural and engineering scales	0.5	2		
3D printing	1	6		
Geometric construction	1	5		
Multi-view projections	1	5		
Section views	1	5		
Auxiliary views	1	5		
Pictorial drawings	1	3		
Dimensioning and tolerances	1.5	3		
Coordinate inputs in CAD	0.5	1.5		
CAD	2	10		
Parametric design	0.5	3.5		
Design process/project	1	13		
TOTAL	15	67.5	0	0

EVALUATION

QUIZZES	☑	EXAMS	☑	ORAL PRES	☑	PAPERS	☑
LAB WORK	☑	PROJECTS	☑	COMP FINAL	☑	OTHER	☑

COURSE MATERIALS

TITLE:	Autodesk Inventor 2023 Essentials Plus	Technical Drawing with Engineering Graphics
AUTHOR:	Daniel T. Banach and Shawna Lockhart	Giesecke et al.
PUBLISHER:	SDC Publications	Pearson-Prentice Hall
VOLUME/EDITION/URL:	ISBN: 978-1-63057-510-6	15th edition
COPYRIGHT DATE:	2022	2016

TITLE:	Technical Drawing Problems Series 3	Custom Drafting Kit
AUTHOR:	Giesecke	
PUBLISHER:	Macmillan	
VOLUME/EDITION/URL:	9th edition	
COPYRIGHT DATE:	1991	

MAJOR COURSE SEGMENT	HOURS	LEARNING OUTCOMES
		The student will be able to:
Intro to engineering graphics and design process	1.5	1. Provide an overview of engineering graphics and the steps of the design process.

Lettering, line types and weights	3.5	1. Demonstrate drawing neatness, speed and accuracy. 2. List and create the different line types.
Sketching	3.5	1. Use techniques to improve sketching of parts.
Architectural and engineering scales	2.5	1. Use either scale to measure and layout objects .
3D printing	7	1. Identify the different types of 3D printers. 2. Create 3D printed parts of CAD models.
Geometric construction	6	1. Use drafting equipment to draw objects that require geometric construction techniques.
Multi-view projections	6	1. Develop skills to visualize objects (constructive imagination). 2. Convert between pictorial view and multi-view. 3. Locate the missing lines in the 3rd view.
Section views	6	1. Construct different types of section views.
Auxiliary views	6	1. Use the folding-line and reference-plane methods to draw auxiliary views. 2. Determine the true size of a dihedral angle.
Pictorial drawings	4	1. Draw isometric and oblique views from multi-view drawings.
Dimensioning and tolerances	4.5	1. Describe the differences between baseline and relative dimensions. 2. Create a properly dimensioned and toleranced multiview drawing using engineering standards. 3. Calculate the acceptable range of diameters for a classic shaft-hole assembly using a tolerance table.
Coordinate inputs in CAD	2	1. Create drawings in CAD that require the use of absolute, relative and polar coordinates.
CAD	12	1. Create and plot technical drawings in CAD that require the use of several draw and modify commands and many other tools .
Parametric design	4	1. Construct a parametric driven part and evaluate part with different parametric values.
Design process/project	14	1. Analyze the engineering function of existing designs. 2. Create functional models based on design intent. 3. Develop a set of working drawings that meets the specified design requirements. 4. Communicate design with verbal and written presentations. 5. Write a paper on the design process.
	82.5	

Outcomes*	Outcome Title	At the successful completion of this course, students will be able to:
Course Outcome 1	Geometric Const Tech	Use geometric construction techniques to locate geometric features.
Course Outcome 2	Pictorial Multi View	Convert between pictorial views and multi-views.
Course Outcome 3	Auxiliary View	Produce an auxiliary view to determine the true size of a dihedral angle.
Course Outcome 4	CAD Software	Construct technical drawings using CAD software.

Primary Laker Learning Competency	Professional Skills & Ethics: Students demonstrate professional skills and ethical accountability.
Secondary Laker Learning Competency	Scientific Literacy: Students apply the scientific process to real-life situations.

**Course and program outcomes will be used in the software for outcomes assessment and should include at least 1 primary and 1 secondary Laker Learning Competency. Limit to 3-5.*