6/6/2023 DATE
☑ REQUIRED COURSE
☐ ELECTIVE COURSE

Technology DIVISION
☐ NEW COURSE
☑ REVISION

Lake Land College

Course Information Form

COURSE NUMBER:	TEC-060	TITLE: *(30 Characters Max)*	Analytical Mechanics						
SEM CR HRS:	4	Lecture:	3	Lab:	2			ECH:	5
Course Level:	☐ Gen Ed / IAI ☐ Baccalaureate /Non-IAI ☑ Career/Technical ☐ Dev Ed/ Not in Degree Audit			Clinical Practicum:	0	SOE/ Internship:	0	SOE ECH:	0
COURSE PCS #	11.141101	IAI Code				Contact Hours (Minutes Per Week)			
Repeatable (Y/N):	Y	Pass/Fail (Y/N):	N	Variable Credit (Y/N):	N	Min:		Max:	
						16 Wks	250	8 wks	500
Prerequisites:	TEC-052 Technical Math II								
Catalog Description: (40 Word Limit)	Enables the student to analyze forces acting on structural elements and rigid bodies. The concepts of stress and strain in structural materials is introduced.								

	List the Major Course Segments (Units)	Contact Lecture Hours	Contact Lab Hours	Clinical Practicum	Non-Clinical Internship/ SOE
1	Basic Concepts and review of trigonometry & unit conversions	3	2		
2	Resultant of Concurrent Forces in a Plane	9	6		
3	Equilibrium of Concurrent Forces in a Plane	6	4		
4	Resultant of non-concurrent Forces in a Plane	9	6		
5	Equilibrium of a Rigid Body	6	4		
6	Force Analysis of Structures and Machines	9	6		
7	Friction	3	2		
8	Center of Gravity and Centroids	3	2		
9					
	TOTAL	48	32	0	0

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

COURSE MATERIALS		
TITLE:	*Statics and Strength of Materials*	
AUTHOR:	H.W. Morrow	
PUBLISHER:	Regents/Prentice Hall	
VOLUME/EDITION/URL:	7th	
COPYRIGHT DATE:	2011	

MAJOR COURSE SEGMENT	HOURS	LEARNING OUTCOMES
		The student will be able to:
Basic Concepts and review of trigonometry & unit conversions	5	Calculate missing components of triangles utilizing trigonometry & convert from one unit of measure to another.
Resultant of Concurrent Forces in a Plane	14	Calculate the resultant of concurrent force systems graphically, mathematically and using rectangular components.
Equilibrium of Concurrent Forces in a Plane	10	Draw a free-body of a concurrent force system and determine unknown forces in the system.
Resultant of non-concurrent Forces in a Plane	14	Calculate a moment about a point and calculate the resultant of parallel and nonparallel force systems.
Equilibrium of a Rigid Body	10	Construct free-body diagrams of non-concurrent force systems and determine the reaction forces.
Force Analysis of Structures and Machines	14	Utilize the Method of Joints and the Method of Sections to calculate the magnitude of the internal forces of structural members.
Friction	5	Determine forces necessary to start or prevent movement based on the coefficient of friction and mass of the object.
Center of Gravity and Centroids	5	Determine the centroid of an object by either observation or calculation.

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	80	

COURSE OUTCOMES*	At the successful completion of this course, students will be able to:
Calculate the x and y components of a force vector.	
Calculate the moment of forces about a point on a structural beam.	
Draw a free body diagram and determine the reaction forces at the supporting members of a truss.	
Demonstrate their ability to calculate the internal forces on members of a truss.	

** Course Outcomes will be used in the Assessment Software for Outcomes Assessment. Limit to 3 - 5.*