2/15/2023 DATE
☐ REQUIRED COURSE
☑ ELECTIVE COURSE

Technology DIVISION
☑ NEW COURSE
☑ REVISION

Lake Land College

Course Information Form

COURSE NUMBER:	WND-041		**TITLE:** *(30 Characters Max)*		Wind Technology Maintenance I					**ECH:**	4
SEM CR HRS:	3	**Lecture:**	2	**Lab:**	2						
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 #	12.151701		**IAI Code**					**Contact Hours (Minutes Per Week)**			
Repeatable (Y/N):	Y	**Pass/Fail (Y/N):**	Y	**Variable Credit (Y/N):**	Y	**Min:**		**Max:**		**16 Wks**	200	**8 wks**	400
Prerequisites:	WND-040, MET-040, MET-042, & TEC-048 or WND-040, EET-040, EET-050, TEC-050 & TEC-052										
Catalog Description: (40 Word Limit)	This course introduces students to wind turbine maintenance and tower safety and rescue. Lectures focus on gearbox and electrical system maintenance while the labs focus on tools, climbing, rescue, and safety.										

	List the Major Course Segments (Units)	Contact Lecture Hours	Contact Lab Hours	Clinical Practicum	Non-Clinical Internship/ SOE
1	Wind Turbine Layout	2			
2	Wind Turbine Tools	2	2		
3	Gearboxes	2			
4	Electrical Control Systems	2	1		
5	Electrical Power Systems	2	1		
6	Electrical Safety and Procedures	2	2		
7	Tower Safety & OSHA Requirements	3	2		
8	Climbing and Rescue	4	12		
9	Turbine Installation	3	2		
10	Inspection Procedures	4	4		
11	Basic Maintenance	4	4		
	TOTAL	30	30	0	0

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

COURSE MATERIALS		
TITLE:	Wind Turbine Technology	
AUTHOR:	Ahmad Hemami	
PUBLISHER:	Delmar Cengage Learning	
VOLUME/EDITION/URL:	1st Edition	
COPYRIGHT DATE:	2012	

MAJOR COURSE SEGMENT	HOURS	LEARNING OUTCOMES
		The student will be able to:
Wind Turbine Layout	2/0	Describe and locate the electrical and mechanical parts of the wind turbine.
Wind Turbine Tools	2/2	Identify and successfully use the tools required for installing and maintaining wind turbines
Gearboxes	2/0	Discuss the basic operation and maintenance for wind turbine transmissions.
Electrical Control Systems	2/1	Discuss and understand the electromechanical systems used to yaw, start, and stop turbines.
Electrical Power Systems	2/1	Discuss the operation and use of the rectifier, inverter, and phase control systems.
Electrical Safety and Procedures	2/2	Discuss the safety procedures when working on 480 volt generators.
Tower Safety and OSHA Requirements	3/2	Discuss the safety requirements, including fall restraint and fall arrest systems and OSHA 1910, involved with climbing wind towers.
Climbing and Rescue	4/12	Define and use of various knots and hitches, perform a climb and a self-rescue and partner rescue using a descent device.
Turbine Installation	3/2	Describe how turbines are installed in the field.
Inspection Procedures	4/4	Perform basic maintenance inspections on turbines.

Basic Maintenance	4/4	Perform basic maintenance and repair procedures on wind turbines.
Insert New Line Above this Line		
	30	

COURSE OUTCOMES*	At the successful completion of this course, students will be able to:
	• Identify the location and function of the major mechanical and electrical parts of a turbine.
	• Describe electrical safety precautions.
	• Demonstrate proper climbing techniques in compliance with state and Federal OSHA standards.
	• Perform basic wind turbine maintenance.
	• Demonstrate self and partner rescue in an emergency situation.
	• Properly select and use ropes, hardware and systems needed to perform a safe rescue.

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