2/13/2023 DATE REQUIRED COURSE ELECTIVE COURSE

7

Technology DIVISION ☑ NEW COURSE ☑ REVISION

Lake Land College

Course information Form													
COURSE NUMBER:	V	VND-040		TITLE: (30 Characters	Max)		Introd	uction to	Wind T	echnolog	ду		
SEM CR HRS:	3	Lecture:		3			Lab:	0				ECH:	3
Course Level:	🗌 Ge	en Ed / IAI accalaureate /Non-IAI	Career/ Dev Ed/	Fechnical Not in Degree Audit	Clinic	cal Practi	cum:	0	Inte	SOE/ ernship:	0	SOE ECH:	0
COURSE PCS #		12.151701		IAI Code						Conta	ct Hours (M	inutes Per V	Veek)
Repeatable (Y/N):	Y	Pass/Fail (Y/N):	Y	Variable Credit (Y/N):	Y	Min:		Max:		16 Wks	150	8 wks	300
Prerequisites:	Ν	JONE					-						
Catalog Description: (40 Word Limit)This course provides students with an understanding of basic wind technology concepts. Topics include turbine parts and operation, anemometry data collection and analysis, and evaluation of basic turbine technology.													

	List the Major Course Segments (Units)	Contact Lecture Hours	Contact Lab Hours	Clinical Practicum	Non-Clinical Internship/ SOE
1	Development of Wind Power	1			
2	Turbine Parts	3			
3	Physics of Wind Power	4			
4	Applications of Wind Power	4			
5	Anemometry	5			
6	Anemometry Data Analysis	5			
7	Economics of Turbines	3			
8	Horizontal Axis Wind Turbines	6			
9	Vertical Axis Wind Turbines	4			
10	Towers and Foundations	2			
11	Utility Tied Systems	3			
12	Off-Grid Systems	3			
13	Trends in Wind Power	2			
	TOTAL	45	0	0	0

EVALUTION					
QUIZZES 🔽	EXAMS 🗹	ORAL PRES	PAPERS	I	
LAB WORK	PROJECTS	COMP FINAL	✓ OTHER		

COURSE MATERIALS				
TITLE: Wind Energy Basics: A Guide to Home and Community Scale Wind, Energy Systems				
AUTHOR:	Paul Gipe			
PUBLISHER:	Chelsea Green Publishing Co.			
VOLUME/EDITION/URL:	2nd Edition			
COPYRIGHT DATE:	2009			

MAJOR COURSE SEGMENT	HOURS	LEARNING OUTCOMES
		The student will be able to:
Development of Wind Power	1	Describe the historical development of wind power
Turbine Parts	3	Identify and explain the major components of a wind turbine and briefly explain their function.
Physics of Wind Power	4	Discuss the forces involved with wind turbines and the role geography plays with wind speeds and air density.
Applications of Wind Power	4	Discuss how wind power can be used for mechanical and electrical operations.
Anemometry	5	Explain the purpose of wind data and collection procedures.
Anemometry Data Analysis	5	Analyze wind data from a collection site.
Economics of Turbines	3	Calculate the costs of installing and operating a turbine.
Horizontal Axis Wind Turbines	6	Discuss the characteristics and design of modern horizontal axis wind turbines and their appropriate uses.
Vertical Axis Wind Turbines	4	Discuss the characteristics and design of modern vertical axis wind turbines and their appropriate uses.

Towers and Foundations	2	Describe basic tower design and standard foundations currently in use.
Utility Tied Systems	3	Identify and explain the parts and operation of a wind turbine system connected to the utility grid.
Off-Grid Systems	3	Identify and explain the parts and operation of a wind turbine designed as a stand alone system.
Trends in Wind Power	2	Discuss current design and installation trends and challenges in the industry.
Insert New Line Above this Line		
	45	

COURSE OUTCOMES*	COURSE OUTCOMES* At the successful completion of this course, students will be able to:			
Identify and explain the principal parts of a wind	I turbine.			
Discuss collection and interpretation of basic an	emometry data.			
Demonstrate basic calculations to verify the ecc	nomic feasibility of a wind turbine for a particular geographic location.			
Summarize the characteristics of horizontal axis	and vertical axis wind turbines.			

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