

ILLINOIS VALLEY COMMUNITY COLLEGE



COURSE OUTLINE

DIVISION: Workforce Development

COURSE: WND 1200 - Wind Energy Concepts

Date: Spring 2014

Credit Hours: 3

Prerequisite(s): None

Delivery Method:

<input checked="" type="checkbox"/> Lecture	2 Contact Hours (1 contact = 1 credit hour)
<input type="checkbox"/> Seminar	0 Contact Hours (1 contact = 1 credit hour)
<input checked="" type="checkbox"/> Lab	2 Contact Hours (2 contact = 1 credit hour)
<input type="checkbox"/> Clinical	0 Contact Hours (3 contact = 1 credit hour)
<input type="checkbox"/> Online	
<input type="checkbox"/> Blended	

Offered: Fall Spring Summer

IAI Equivalent –**Only for Transfer Courses**–go to <http://www.itransfer.org>:

CATALOG DESCRIPTION:

This course is the first course in the wind energy program. Topics include the history, economics, operation and terminology of the wind turbine. This class also introduces students to the wind energy trainers and has a lab component.

GENERAL EDUCATION GOALS ADDRESSED

[See the last page of this form for more information.]

Upon completion of the course, the student will be able:

[Choose those goals that apply to this course.]

- To apply analytical and problem solving skills to personal, social and Professional issues and situations.
- To communicate orally and in writing, socially and interpersonally.
- To develop an awareness of the contributions made to civilization by the diverse cultures of the world.
- To understand and use contemporary technology effectively and to understand its impact on the individual and society.
- To work and study effectively both individually and in collaboration with others.
- To understand what it means to act ethically and responsibly as an individual in one's career and as a member of society.
- To develop and maintain a healthy lifestyle physically, mentally, and spiritually.
- To appreciate the ongoing values of learning, self-improvement, and career planning.

EXPECTED LEARNING OUTCOMES AND RELATED COMPETENCIES:

[Outcomes related to course specific goals.]

Upon completion of the course, the student will be able to:

Competency 1 History of Wind Industry

Competency 1.1 Discuss the history of the Wind Industry

Competency 1.2 Label the components of a Wind Turbine

Competency 2 Trainer safety

Competency 2.1 Apply Lock out / Tag out procedures

Competency 2.2 Contrast Safety Panels and Guards

Competency 2.3 Show Proper Grounding

Competency 2.4 Assess equipment Protection

Competency 3 Wind Terminology and Concepts

Competency 3.1 Compare Energy, Power and Work

Competency 3.2 Analyze setting

Competency 3.3 Explain Breaking

Competency 3.4 Analyze Loading

Competency 4 Wind Systems

Competency 4.1 Explain the Controller function

Competency 4.2 Calculate Power consumption and Efficiency

Competency 4.3 Illustrate the Inverter

Competency 5 Transmission and Distribution

Competency 5.1 Explain Power Generation

Competency 5.2 Describe Power Transmission

Competency 5.3 Analyze a Power Distribution Grid

Competency 5.4 Contrast On and Off Grid Operation

Competency 5.5 Solve Troubleshooting issues

Competency 6 Going Green

Competency 6.1 Defend the economics of the Wind Industry

Competency 6.2 Discuss Wind Industry Careers

COURSE TOPICS AND CONTENT REQUIREMENTS:

History of Wind Industry
Economics of Wind Industry
Wind Turbine Components
Lab Safety
Terminology
Wind Turbine Concepts
Power Ratings and distribution Systems
Going Green
Meteorology

INSTRUCTIONAL METHODS:

Lecture
Lab
Simulations

INSTRUCTIONAL MATERIALS:

Lab Volt and Amatrol Student Manuals
Lab Volt Solar/Wind Energy Training system Trainers
Amatrol Wind energy trainers

STUDENT REQUIREMENTS AND METHODS OF EVALUATION:

90% and up	A
80% - 89%	B
70% - 79%	C
60% - 69%	D
00% - 59%	F

Quizzes	10%
Labs	30%
Tests	20%
Midterm	20%
Final	20%

Some quizzes and test may be performance based

OTHER REFERENCES

Course Competency/Assessment Methods Matrix

WND 1200 - Wind Energy Concepts		Assessment Options																																		
For each competency/outcome place an "X" below the method of assessment to be used.	Assessment of Student Learning	Article Review	Case Studies	Group Projects	Lab Work	Oral Presentations	Pre-Post Tests	Quizzes	Written Exams	Artifact Self Reflection of Growth	Capstone Projects	Comprehensive Written Exit Exam	Course Embedded Questions	Multi-Media Projects	Observation	Writing Samples	Portfolio Evaluation	Real World Projects	Reflective Journals	Applied Application (skills) Test	Oral Exit Interviews	Accreditation Reviews/Reports	Advisory Council Feedback	Employer Surveys	Graduate Surveys	Internship/Practicum /Site Supervisor Evaluation	Licensing Exam	In Class Feedback	Simulation	Interview	Written Report	Assignment				
	Direct/ Indirect	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	I	I	I	I	D	D										
Assessment Measures – Are direct or indirect as indicated. List competencies/outcomes below.																																				
1.1 Discuss the history of the Wind Industry		X																																		
1.2 Label the components of a Wind Turbine					X																															
2.1 Apply Lock out / Tag out procedures					X			X																												
2.2 Contrast Safety Panels and Guards								X	X																										X	
2.3 Show Proper Grounding					X																														X	
3.1 Compare Energy, Power and Work																																				
3.2 Analyze setting		X						X	X																										X	
3.3 Explain Breaking					X																														X	
3.4 Analyze Loading					X																														X	
4.1 Explain the Controller function					X																															
4.2 Calculate Power consumption and Efficiency					X			X	X																											
4.3 Illustrate the Inverter					X			X																												
5.1 Explain Power Generation					X				X																											X
5.2 Describe Power Transmission					X																														X	

WND 1200 - Wind Energy Concepts		Assessment Options																																
For each competency/outcome place an "X" below the method of assessment to be used.	Assessment of Student Learning	Article Review	Case Studies	Group Projects	Lab Work	Oral Presentations	Pre-Post Tests	Quizzes	Written Exams	Artifact Self Reflection of Growth	Capstone Projects	Comprehensive Written Exit Exam	Course Embedded Questions	Multi-Media Projects	Observation	Writing Samples	Portfolio Evaluation	Real World Projects	Reflective Journals	Applied Application (skills) Test	Oral Exit Interviews	Accreditation Reviews/Reports	Advisory Council Feedback	Employer Surveys	Graduate Surveys	Internship/Practicum /Site Supervisor Evaluation	Licensing Exam	In Class Feedback	Simulation	Interview	Written Report	Assignment		
	Direct/ Indirect	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	I	I	I	I	D	D								
Assessment Measures – Are direct or indirect as indicated. List competencies/outcomes below.																																		
5.3 Analyze a Power Distribution Grid					X																							X					X	
5.4 Contrast On and Off Grid Operation					X																												X	
5.5 Solve Troubleshooting issues					X	X	X	X																										
6.1 Defend the economics of the Wind Industry		X				X																						X					X	
6.2 Discuss Wind Industry Careers		X																									X						X	