MESABI RANGE COMMUNITY & TECHNICAL COLLEGE

Course Outline

Course Title:	**Wind Turbine Mechanical Systems**	**Submitted By:**	**Dan Janisch**
Semester Course Prefix and Number:	**WET 2222**	**Approval Date:**	**March 2010**
Old Quarter Course Prefix and Number:		**Revision Date:**	

Number of Credits: 3	**Number of Lecture Credits: 1**	
Semester(s) Offered: Fall Second Year	**Number of Lab Credits:2**	**Number of Lab Hours:4**
Class Size: 24	**Number of Studio/Demonstration/Internship Credits:**	
Negotiated by AASC on: (date)		

Course Purpose Code:

_____ **0 –** Developmental Courses
_____ **1 –** Non-transferable
__X__ **2 –** Technical course related to career programs
_____ **3 –** College course which has the primary goal of applying certain concepts (e.g. vocal ensemble)
_____ **4 –** Other college course not considered a part of MNTC (e.g. computer science, health, physical education)
_____ **5 –** Course which is intended to fulfill the Minnesota Transfer Curriculum (MNTC) requirements or intended for transfer.
_____ **9 –** Continuing Education/Customized Training specialized credit course (not occurring in 0-5)

Catalog Description:

The course is designed to provide students with the opportunity to gain hands-on experience with tasks related to wind turbine construction, operation and maintenance. In addition to hands-on experience, students will first formally learn about the mechanical systems in the classroom. Students will specifically learn about the mechanical functions of a turbine that are required to generate power from wind. Yaw systems, pitch systems, gearboxes, tower bolting, and miscellaneous ancillary systems will be discussed.

Prerequisites and/or recommended entry skills/knowledge:

Course Prerequisite(s):	First Year of Wind Program
Reading Prerequisite:	College Level Reading
Composition Prerequisite:	College Level Writing
Mathematics Prerequisite:	First Year of Wind Program

Career Programs and Transfer Majors Accessing this Course:

Wind Energy Technology, EIAT and IT students with instructor approval.

Minnesota Transfer Curriculum Goal(s) partially met by this course if applicable:

(Notes: No more than two goals may be met by any one course. Curriculum Committee review and the Chief Academic Officer's approval are required.)

0. _____ None
1. _____ Communications
2. _____ Critical Thinking
3. _____ Natural Sciences
6. _____ The Humanities and Fine Arts
7. _____ Human Diversity
8. _____ Global Perspectives
9. Ethical and Civic Responsibility

4. ____ Mathematical/Logical Reasoning
5. ____ History and the Social and Behavioral Sciences
10. ____ People and the Environment

Learning Outcomes: (including any relevant competencies listed in the Minnesota Transfer Curriculum)

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

1.) Identify the different types of wind turbine mechanical systems.
2.) Relate the wind turbine mechanical systems to each other in order to ensure a complete working system.
3.) Identify parts of the systems and troubleshoot them.
4.) Repair individual components of the systems and then re-assemble them to create working systems.
5.) Demonstrate the ability to read blueprints and specify parts based on their analysis of the prints compared to the actual parts.

Student Assessment Methods:
Written tests and quizzes. Demonstration of mechanical abilities. Report writing.

Use of Instructional Technology: (includes software, interactive video and other instructional technologies):

Email, Moodle, diagnostic devices and tools.

Outline or Statement of Major Course Content:

Mechanical systems diagnosis and repair. Instruction on yaw systems, pitch systems, gearboxes, and miscellaneous ancillary systems from various industry leading turbine models.

Additional Special Information: (special fees, directives on hazardous materials, etc.)

Student will be expected to work with tools and heavy equipment in order to maintain a passing grade in this class.

Transfer Information: (Please list colleges/majors that accept this course in transfer.)

Approvals:

Body	Representative Signatures	Date
Curriculum Committee		
Faculty Association		
Academic Affairs Standards Committee		
Chief Academic Officer		

Distribution: Original – Administrative Office
Copies: Curriculum Committee Chair, AASC Chair, Transfer Specialist, Originating Faculty Member, Scheduler, Records
Revised: May 2009