

**Eastern WV Community & Technical College
Master Course Record**

Course Prefix and Number: WTT 210
Course Title: Wind Turbine Mechanical Systems
Recommended Transcript Title: Wind Turbine Mechanical Systems
Date Approved/Revised: 7/14/14; 9/21/15; 11/6/17
Credit Hours: 4 Contact hours per week (Based on 15 week term): Lecture: 3 Lab: 3
Prerequisite: None Corequisite: None Pre/Corequisite: None
Grading Mode: Letter Grade
Catalog Description: This course is designed to introduce students to the mechanical systems that make up the subsystems of wind turbines. The course includes the rotor reduction gear, as well as the blade pitch gears and control system. It will emphasize development of the knowledge and hand skills needed when installing, repairing and replacing turbine components using common tools and equipment.
Course Outcomes: Students will: <ol style="list-style-type: none"> 1. Utilize a wind turbine nacelle training simulator to learn and operate system components and to demonstrate troubleshooting of the various nacelle systems 2. Isolate electrical and mechanical energy by using Lock Out Tag Out (LOTO) procedures 3. Understand the importance of a preventative-maintenance program 4. Describe types of lubricants and lubrication systems 5. Explain fluid power systems 6. Identify types, specifications, and uses of fasteners used in wind turbines 7. Understand torque and demonstrate use of torque wrenches 8. Explain the importance of vibration monitoring 9. Describe the function of Programmable Logic Controllers (PLC's) and Supervisory Control and Data Acquisition (SCADA) 10. Explain flow states of a turbine control system 11. Explain the function and operation of the braking systems, rotor lock, and yaw drive system 12. Explain how the meteorological system interacts with the yaw drive system 13. Discuss the importance and functions of PPE and the safety protection systems 14. Analyze schematic diagrams and use a multimeter 15. Understand proper climbing techniques and use of climb safety equipment
Implementation Cycle: Fall
Role in College Curriculum: (Check all that apply) <input type="checkbox"/> General Education Core (Specify category) <input checked="" type="checkbox"/> Technical Core: Wind Energy Technology, AAS

WTT – 210 Wind Turbine Mechanical Systems
Date Prepared/Revised: 03/16/15; 05/25/15/ 11/6/17
Date course Approved by curriculum Committee: 11/6/17
Date Course Approved by LOTE: 11/15/10; 7/14/14; 4/20/15; 09/21/15; 11/20/17

<input type="checkbox"/> Restricted Elective (Specify Program) <input type="checkbox"/> General Elective <input type="checkbox"/> Workforce <input type="checkbox"/> Other (Please specify)
Course Fee: Yes
Instructor's Qualifications: Bachelor's Degree in engineering, related technical field, or industry recognized qualifications.
Expanded Course Description: This course is designed to introduce students to the electromechanical systems that make up the wind turbine nacelle. Students will use a wind turbine nacelle training simulator, schematic diagrams, and a multimeter to learn, operate, and troubleshoot system components. Lubricants, hydraulics, fasteners, state flow diagrams, electrical control systems, motors and other related topics will be studied. Students will also have the knowledge to obtain PMMI (The Association for Packaging and Processing Technologies) certificates of completion and be registered in the PMMI National Database.

Prepared by: Skip Landes, Faculty, 11/17/10; 07/14/14; 03/16/15; 05/25/15
Eric Putze, Advanced Technology/Wind Energy Faculty, 11/7/17

Approved by:
Robert Eagle, Dean, Academic and Student Services (SB-G) 11-17-10; 07-14-14;
09/21/15
