SECTION HEADING

ELWT 1110: Mechanical Systems

Description

Mechanical Systems provides an understanding of wind turbine drive systems (gearboxes) and associated components, introduced two different types of gearboxes and associated mechanical systems and subsystems of today's wind turbines, focus on lubrication, oil analysis, construction and preventative maintenance techniques for modern wind turbine drive systems.

Credits

3

Topics to be Covered

1. Identify different parts of a wind turbine drive system.

2. Identify with the past and current gearbox designs.

3. Describe how a gearbox system works.

4. Investigate different components of the gearbox (bearing, gears, and shafts).

5. Explore the different types of breaking, gear reduction and cooling systems.

Learning Outcomes

1. Investigate the basic drivetrain principles.

2. Investigate gear/bearing failure analysis.

3. Operate non-destructive testing techniques.

4. Demonstrate how to use tools and techniques on gearboxes.

5. Explore the purpose of the gearbox.

6. Investigate oil sample analysis.

7. Inspect braking and oil system components.

8. Investigate the types of failures (fatigue, corrosion, loop, fractures, etc.)

9. Identify the drivetrain parts and where they are located.

10. Study gearbox operation and failures in wind energy.

11. Study the past and future of wind turbine drivetrains.

Credit Details

Lecture: 2

Lab: 1

OJT: 0