

## **SEDV 603: ENERGY SYSTEMS II: RENEWABLE ENERGY**

Renewable energy sources, such as: wind, hydro, solar photovoltaic, solar heat collection, geothermal, biomass, and cogeneration. System level physical modelling. Steady-state turbine operation. Introductory thermodynamics. Economic tools such as levelized cost of energy analysis.

*Instructor:*

TBD

*Course Objective:*

This course explores basic principles underlying the steady-state operation of major renewable energy sources, tools and methods for resource estimates, and economic cost estimation techniques.

*Topics Covered (Selected):*

- Basic parameters in renewable energies
- Resource assessment
- Basic economic analysis
- Socioeconomic aspects
- Environmental impacts
- Solar energy
- Wind energy
- Small hydropower systems
- Geothermal energy
- Biomass energy conversion technologies
- Power from sea-wave energy
- Cogeneration
- Mitigation actions in the development of renewables
- Case study review
- Introduction to software tools for renewable energy resource estimate and economic assessment