ELEC 6221
Generation Technologies and their Impact on Society

Course overview

Dr. Igor Golosnoy, Prof. Alun Vaughan, Dr. Thomas Andritsch
Aims
Major Aims

- To appreciate role of electric power in the modern world
  - Size of the industry
- To understand current power demands and projected increase
  - Geographic location
  - Seasonal and daily variations
- To learn about different generation technologies, including
  - Physical and engineering aspects
  - Economy and cost
  - Impact on environment
  - Political vector
Course structure
Topics

• Power Generation
  – Technologies (fossil fuel, nuclear, renewables, others?)
  – Energy in the society
  – Resources availability
  – Technological costs
  – Impact on the environment
  – Political independence

• 1st assignment – 30% of final mark
  – Group work (presentation) 50% contribution
    • Energy policy for a given country
    • YOU have to offer 3 sources
  – Individual component (report) 50% contribution
    • Compare and contrast proposed strategy with that of another country
  – Form a group!
  – Split the research load
Topics continued

- Energy from the environment
  - Designs and performance
- Heat engines
  - Technologies (turbines, boilers, condensers, pumps, etc)
  - Thermodynamic efficiency
  - Engineering design
  - Pollution
  - Capital costs and fuel prices
- **Visit to Marchwood power station**
- Example classes
- **2nd assignment – 20% of final mark**
  - Individual coursework
- **Final examination – 50% of final mark**
Summary of assessments

• 1\textsuperscript{st} assignment – 30\% of final mark
  – Economy and politics of electricity
  – Group work (presentation)
  – Individual component (report)

• 2\textsuperscript{nd} assignment – 20\% of final mark
  – Heat engines

• Written Examination (50\%)
  – 2 hours
  – 4 questions
Questions?