



**SE-815-PPE**

**POWER PLANT DESIGN**

**6 ECTS**

**Year of study:** First year MSc.

**Semester:** Spring.

**Level of course:** 4.-5. Second cycle, introductory-intermediate.

**Type of course:** *Taught in the Iceland School of Energy.* Elective for all MSc programs in engineering.

**Prerequisites:** Courses in thermodynamics and/or fluid dynamics or a reasonable understanding of the principles are recommended prerequisites.

**Schedule:** Taught during the 3-week teaching period at the end of the semester. Schedule will be introduced in the learning management system Canvas.

**Supervisor:** Juliet Newson.

**Lecturer:** William Scott Harvey.

**Learning outcome:**

*Knowledge:*

- Thermodynamics, plant layout, operating principles of turbomachinery and major power plant equipment.

*Skills:*

- Plant layout
- Piping design and pump selection
- Thermal plant major equipment characteristics
- Equipment sizing and selection
- Cost estimating and the procurement process
- Project financial performance
- Sustainability reviews
- Safety in design, construction, and maintenance

*Competence:*

- Perform conceptual design for thermal power plants.

**Content:**

Upon completion of the course students should have the ability to:

- Structure a feasibility study
- Describe and construct the major conceptual drawings for a power project
- Evaluate technical and economic considerations for major equipment and projects
- Assess the major factors affecting technical performance of a thermal power plant
- Assess the major factors affecting financial performance of a power project
- Identify basic construction and maintenance safety practices

**Reading material; Teaching and learning activities; Assessment methods:** Will be introduced in the learning management system Canvas at the beginning of the semester.

**Language of instruction:** English.