

# Sustainable Energy Technology(ies)



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- ECTS 6, Lectures 10h, Tutorials 10h, Study visit 4h
- Prof. Ronald Wennersten, KTH;
- Prof. Alija Lekić, MEF S
- Prof. Mujo Hebibović, EEF S
- Lect. Nijaz Delalić, MEF S



# Course objectives

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- The objectives of the course are to give the student
  - A deeper knowledge in energy resources, power generation technologies, taking into account sustainability and environmental aspects, and efficient use of energy.
  - An understanding on the regulation and control of energy transformation processes and use of energy in different facilities



# Learning outcomes

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- After the successful completion of the course, the students should
  - be able describe different sources of primary energy
  - understand the principles of different power generation methods
  - be able to compare different power generation alternatives and choose the most suitable for given conditions



# Learning outcomes (cont.)

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- describe some of the components in a power plant
- understand the ways of control and regulation of energy transformation and utilization facilities
- be able to prepare the preliminary design of the power plant facilities with different power generation technologies



# Course content

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- An outlook of the world of energy (resources, production and consumption)
- Brief overview of “conventional energy technologies”
- Fluidized bed combustion
- Gasification
- IGCC (Integrated Gasification Combined Cycle)



# Course content (cont.)

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- Combined cycle with natural gas as a fuel
- Fuel cells
- Cogeneration
- The regulation and control of
  - Processes in power plants
  - Energy utilization in other facilities



# Teaching methods

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- Lectures
- Project in energy technologies including written report and oral presentation in front of all students; project will partly be done during the tutorials under the supervision of assistants
- Individual consultation
- Study visit

# Examination form



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- Oral presentation of the project will be marked taking into account the students opinion



# Teaching materials

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- Teaching material from KTH
- “Energy conversion” by Kenneth C. Weston (web book <http://www.personal.utulsa.edu/~kenneth-weston/> )
- “Cogeneration and new technologies in electric power generation” by Hadziefendic S., Lekic A. and Kulic E. (in Bosnian)