

Renewable energy sources (4th Year, 8th SEMESTER)

Credit value (ECTS) 4

Course category

Domain (Imposed)

Lecturer

prof. dr. Gheorghe Radu ROȘCA

Discipline objectives (course and practical works)

The course is aimed to present how the renewable energy is produced and used: wind energy, geothermal energy, solar energy, use of alternative energy sources for self-propelled vehicles.

Contents (syllabus)

Course (chapters/subchapters)
Atmosphere aerodynamics; wind action over rigid structures
Harnessing wind energy
Harnessing geothermal energy
Harnessing solar energy
Alternative energy sources for self-propelled vehicles

Practicum
Validation of the radiation law.
Design of a refrigeration system
Estimation of wind potential
Preliminary design of a geothermal heat pump
Preliminary design of a hot water solar collector
Evaluation of a photovoltaic panel
Final grading of assignments

References

1. Bandoc Georgeta, Degeratu M., 2007 – Instalații și echipamente pentru utilizarea energiei mecanice nepoluante. utilizarea energiei vântului. Edit. MatrixRom, București
2. Burnete N., Naghiu Al. – Motoare Diesel și bicom bustibili pentru transportul urban. Edit. Mediamira Cluj-Napoca, 2008
3. Johnson G.L., 2001 – Wind energy systems. Prentice Hall
4. Manwell J.F., McGown J.G., Rogers A.L., 2002 – Wind energy. Theory, design and application. John Willey&Sons, Chicester. U.K.
5. Lucian V.E., 2011 – Surse alternative de energie. Edit. MatrixRom, București
6. Lucian V., 2014 – Energia solară. Ghid de captare și conversie a energiei solare pentru utilizare. Edit. Universitară, București.
7. Ochsner K., 2011 – Pompe de căldură pentru tehnica încălzirii. Edit. matrixRom, București.
8. Roșca R., Rakoși E, 2003. Sisteme neconven ționale de propulsie și transport. Edit. "Gh. Asachi" Iași,

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Course	Presence and active participation	10%
Practical training	Grading of assignments	30%
Final exam	Written examination	60%

Contact person

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