### MET 2206 Renewable energy resources (3CU)

**Description**

This course deals withthe fundamentals of renewable energy and the advantages and disadvantages of it use.

**Objectives**

The course will help the students to achieve the following objectives

* Describe the fundamentals of renewable energy sources
* Understand the relationship between energy and climate
* Describe the different renewable energy sources

**Learning outcomes**

By the end of the course, students should be able to:

* Define and explain the different renewable and nonrenewable energy resources
* Explain the impact of energy utilization on climate
* Discuss the different policies of energy conservation and preservation.
* Explain the limitations and merits of using renewable energy in Uganda.

**Intellectual, Practical and transferable skills**

* Problem solving
* Analytical
* communication

**Teaching and learning patterns**

The mode of learning involves direct contact with students in form of lectures, Tutorials and assignments

**Indicative content**

### Fundamentals of renewable energy resources: understanding the concept of energy, definition of renewable and nonrenewable energy resources, the potential non renewable energy resources (coal, oil, natural gas), renewable energy resources (wind, solar, hydro-biogas, geothermal, tidal waves and lightening energy).

### Energy utilization and its effect on the climate – type of energy used, measurement and estimation, consumption levels, impact on the climate and man.

* Use of renewable energy in Uganda: hydro power-(resources assessment, design and management using meteorological information), solar energy- (Basic radiation laws: spatial distribution of short and long wave radiation. Space time characteristics of solar radiation, measurement and estimation of solar radiation over different surfaces, types of solar energy collectors, solar energy uses).
* Energy conservation and preservation policies and approaches for sustainable energy use globally and in Uganda - (Opportunities and challenges, Laws and policies, structures).

**Assessment Method**

The assessment method is structured to include course work, and final examination. Course work consists of assignments, reports and tests and accounts for 30% of the final grade. The final examination will account for 70% of the final grading

**Core Reference materials**

* **Boyle, Godfrey.  (2004): *Renewable Energy* (2nd edition).** Oxford University Press
* **Boyle, Godfrey, Bob Everett, and Janet Ramage (eds.)** (2004): *Energy Systems and Sustainability: Power for a Sustainable Future*. Oxford University Press