



TECHNOLOGICAL EDUCATION INSTITUTE OF
CENTRAL MACEDONIA
SCHOOL OF TECHNOLOGICAL APPLICATIONS
DEPARTMENT OF MECHANICAL ENGINEERING

Graduate Studies Program:
Academic Year 2014 - 15

**"Renewable Energy Systems: Design,
Development and Optimization"**

Associate Professor K.G. Anthymidis

Subject:

Usage of metallic materials in Renewable Energy Systems.

Introduction & Motivation:

Many metallic materials are used in Renewable Energy Systems. Some of these are Titanium (Ti) and its alloys, especially with Aluminum (Al), Aluminum and its alloys, Silica and Silica alloys and many others. These materials are attracting considerable attention because of their potential use as low-density and high temperature structural materials for the construction of modern renewable energy power plants, such as wind generators and for their increasing use for production of electricity from renewable energy resources such as solar power. The aim of this thesis is to study the most important metallic materials used in renewable energy systems, in order to determine their exact usage, their properties and their future prospects.

Implementation & Means:

Study of the relevant scientific Greek and international literature. Utilize the Library of the Technological Educational Institute of Central Macedonia.

References:

- 1) A review on structure model and energy system design of lithium-ion battery in renewable energy vehicle, Renewable and Sustainable Energy Reviews, Volume 37, September 2014, Pages 627-633, Yong Li, Jian Song, Jie Yang.
- 2) A review on sustainable design of renewable energy systems, Renewable and Sustainable Energy Reviews, Volume 16, Issue 1, January 2012, Pages 192-207, Long Shi, Michael Yit Lin Chew.

Requirements: Good knowledge of English.