

Course Title	SOLAR ENERGY SYSTEMS				
Course Code	MMK 517				
Course Type	ELECTIVE				
Level	MASTER/PHD				
Year / Semester	WINTER SEMESTER				
Teacher's Name	SPECIAL SCIENTIST				
ECTS	8	Lectures / week	3 hours weekly	Laboratories / week	NO
Course Purpose and Objectives	The purpose of the course is the acquisition of knowledge and techniques to analyse solar thermal systems and their characteristics. Emphasis is given on the solar characteristics of Cyprus as well as on the passive and thermal methods of exploiting solar radiation.				
Learning Outcomes	<p>The students will be able to</p> <ul style="list-style-type: none"> • identify, understand and estimate solar geometry and solar potential. • understand and estimate the operation of active and passive solar systems. • analyse and report the performance of solar systems. • suggest appropriate and feasible solar systems to meet specific needs. • familiarise, estimate and report the energy yield of solar installations using different calculation methods. • perform the financial assessment and examine the financial sustainability of solar installations. 				
Prerequisites	NO	Required		NO	
Course Content	<p>The course content includes lectures on the following thematic areas:</p> <ul style="list-style-type: none"> • Solar radiation (basic concepts and features, angles, direct and diffuse radiation in horizontal - inclined - moving levels, measurement of solar radiation). • Passive and Active Solar Systems (basic concepts, typology, features and capabilities, modes of exploitation and optimization of systems). • Thermal production of solar collector technologies (typology, thermal analysis, temperature distribution in the absorber, efficiency factor, thermal gain, flow, efficiency, performance measurement). • Solar installations of thermal energy (calculation methods, curves f, F-f curves, storage and rate of solar energy use). • Financial assessment and sustainability features. 				
Teaching Methodology	<ul style="list-style-type: none"> • Lectures (3 hours per week) • Tutorials (1 hour per week) • Assignments / homework • Demonstrations & visits 				

Bibliography	<ul style="list-style-type: none">• Lecture notes• «Συμβατικές & Ήπιες Μορφές Ενέργειας», Μπαλαράς, Αργυρίου, Καραγιάννης, 2006, Εκδόσεις Τεκδοτική, ISBN: 960-8257-23-9.
Assessment	Midterm examination (30%), homework (30%), final examination (40%)
Language	GREEK OR ENGLISH