Thesis Title	**Seawater Desalination Using Renewable Energy**
Programme of Studies	MSc in Sustainable Energy Systems
Course	SES 701 Maser Thesis I + II
Area of Study	Sustainable Energy Technologies
Student's Name	Alexia Panou
Students Reg. Number	11502606
Supervisor	Dr.-Ing. Paris A. Fokaides, V. Lecturer, Frederick University
Supervisory Committee	Dr. Agis Papadopoulos, Professor, Aristotle University Thessaloniki Dr. George Karagiorgis, Assoc. Professor, Frederick University
Semester	Spring Semester 2018
Short Description	Global freshwater and groundwater resources are being depleted at an alarming rate all around the world. Freshwater scarcity, demographic changes, and industrialization are driving an urgent need to increase the global, sustainable supply of freshwater resources. Acknowledging the high energy consumption of desalination processes, as well as the emerging demands for clean water this study investigates a novel desalination concept, which combines the following features: ▪ The use of reverse osmosis membranes ▪ The utilization of renewable energy technologies to meet the needs of electricity production This project aims at the design and manufacturing of a novel concept, namely the integration of poly Si photovoltaic plant to a reverse osmosis (RO) desalination plant. The main idea behind the proposed concept is that the energy produced by the photovoltaic plant will be used by demand to cover the pumping needs for RO desalination. For this purpose, a PV plant of 1.85 W/m³ of annually produced fresh water (see analysis in following section), will be developed. The study will investigate all important parameters of the proposed concept, and will propose the pre-engineering steps of the unit.