

### Course Syllabus

<b>Course Code and Name</b>	<b>EE 26453 – Renewable and Conventional Energy Conversion</b>
<b>Credit and contact hours</b>	<b>3 (2, 1, 1) (Lecture, Tutorial, Lab)</b>
<b>Required or Elective</b>	<b>Required</b>
<b>Level / Year</b>	<b>Level (8) / Year (4)</b>
<b>Course Prerequisite</b>	<b>EE 26451 Electrical Power Systems – 1</b>
<b>Textbook</b>	W. Cao, Renewable Energy: Utilization and System Integration, Published by ExLi4EvA 2016.
<b>Course Description</b>	This course cover the following topics: Introduction to energy systems and resources – Conventional Power Systems plants (Steam, Hydraulic, diesel, Nuclear, Gas and combined cycle power plants) - Solar Photovoltaic Systems – Modeling and Control – Grid integration of large- scale PV plants - Implementation of Photovoltaic Fault Diagnosis – energy storage - Wind Turbine Specification, large and small scale Design and Economic Evaluation - Design of a Low Cost Permanent Synchronous Machine for Isolated Wind Conversion Systems - Solutions and active measures for wind power integration - Properties and Control of a Doubly Fed Induction Machine - Power Converters for Renewable Energy - Distributed energy resources integration and demand response Modeling of Hybrid Renewable Energy System - Microgrid: Concept, Structure, and Operation Modes - DC distribution systems and microgrid.
<b>Brief List of Topics to be Covered</b>	<ol style="list-style-type: none"><li>1- Introduction to energy systems and resources.</li><li>2- Conventional Power Systems plants.</li><li>3- Solar Photovoltaic Systems.</li><li>4- Energy storage.</li><li>5- Wind energy power generation.</li><li>6- Microgrid.</li></ol>
<b>Course is prerequisite for</b>	-