

101-2 Preliminary Syllabus, Da-Yeh Univ

Information			
Title	綠能光電	Serial No. / ID	1918 / EGR5370
Dept.	電機工程學系碩士班	School System / Class	研究所碩士班1年1班
Lecturer	唐寶婷	Full or Part-time	專任
Required / Credit	Optinal / 3	Graduate Class	No
Time / Place	(一)234 / H367	Language	Chinese

Introduction
The course will give the fundamentals on LEDs and PV Systems and the goals are: - Learning the electrical and optical properties of LEDs and Photovoltaic Systems and their fields of application - Learning basic design rules of LEDs and Photovoltaic systems and plants

Outline
LED: 1. Basic semiconductor theory 2. Radiometry and Colorimetry 3. Radiative and non-radiative recombination 4. The pn junction 5. LED materials and structures of different kind of LEDs (visible spectrum, UV, white LED) 5 Schockley equation, LED characteristics and de s c r i p t i v e parameters 6. Circuits to drive the LEDs 7. Fabrication technologies and packaging issues Photovoltaics: 1. Device structure and working principle 2. Characteristic parameters: Voc Isc, FF, quantum and power efficiency 3. Fabrication technologies of cells and modules 4. Mono and poli-crystalline PV cells 5. Thin film technologies 6. Concentration photovoltaics 7. Advanced structures and materials 8. PV plant components (both on-grid and off-grid) 9. PV system basic design rules

Prerequisite
Students should be equipped with basic competence on Physics, Optics, Electronics, Electrical Energy