

101-2 大葉大學 選課版課綱

基本資訊

課程名稱	綠能光電	科目序號 / 代號	1918 / EGR5370
開課系所	電機工程學系碩士班	學制 / 班級	研究所碩士班1年1班
任課教師	唐寶婷	專兼任別	專任
必選修 / 學分數	選修 / 3	畢業班 / 非畢業班	非畢業班
上課時段 / 地點	(一)234 / H367	授課語言別	中文

課程簡介

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

課程大綱

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 Shockley equation, LED characteristics and descriptive parameters 6. Circuits to drive the LEDs 7. Fabrication technologies and packaging issues

Photovoltaics: 1. Device structure and working principle 2. Characteristic parameters: V_{oc} , I_{sc} , FF, quantum and power efficiency 3. Fabrication technologies of cells and modules 4. Mono and poly-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

基本能力或先修課程

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