

課程資訊 (Course Information)					
科號 Course Number	10520IPT 599500	學分 Credit	3	人數限制 Size of Limit	46
中文名稱 Course Title	有機光電材料和元件				
英文名稱 Course English Title	Organic optoelectronic materials and devices				
任課教師 Instructor	大江昌人				
上課時間 Time	T3T4R3	上課教室 Room	DELTA 台達 208		

課程大綱(Syllabus)
<p>課程內容請依下列項目輸入：</p> <p>1. Course Description(課程說明)</p> <p>This course is newly offered constructively for graduate and senior undergraduate students. Organic optoelectronic devices such as LCD, OLED, OTFT, and OPVT are composed of interdisciplinary technologies. The technologies are formed by device physics, chemistry, materials science, optics, electronics, mechanical engineering and so on. Through introducing such organic optoelectronic devices, the course offers the details of the individual technologies combining with materials science and engineering from basics to applications, especially, we focus on display technologies with the indispensable basics of materials science. Half of the course focuses on materials science relevant to organic optoelectronic devices from the fundamental viewpoints, while the other half introduces some of applications and devices individually.</p> <p>* The course is offered in English.</p> <p>** Attention: Since the instructor is out of town for a conference on 2/14, there are <u>NO CLASS on 2/14</u>. Therefore, <u>the course will begin from 2/16, Thursday.</u></p> <p>2. Text Books(指定用書)</p> <p>TBA</p> <p>3. References(參考書籍)</p> <p>“Concepts of Modern Physics”, sixth edition, by Arthur Beiser (Mc Graw Hill)</p> <p>“Organic electro-optics and photonics: molecules, polymers and crystals” by Larry R. Dalton (Cambridge Univ. Press);</p> <p>“Optics and nonlinear optics of liquid crystals”, by Iam-Choon Khoo (World Scientific).</p>

“Introduction to liquid crystals –Chemistry and Physics–”, by Peter J. Collings and Michael Hird (Taylor&Francis)
“Liquid crystal displays”, by Ernst Lueder (Wiley-SID series in display technologies); ..., etc.

4. Teaching Method(教學方式)

Combination of blackboard teaching with power point viewgraphs.

5. Syllabus(教學進度)

Session 0: Introduction – Course guide –

Session 1~7: Materials science for organic optoelectronic devices

- From atoms to molecules.
- Quantized energy structures.
- Ligand field theory.
- Photo-physics of molecules
- Organic semiconductor
- From single molecule to thin film
- Charge transport in organic thin film, ...etc.

Session 8: Midterm

Session 9-12: Introduction to liquid crystal display (LCD)

- Physics, chemistry, optics of liquid crystal
- Flat panel display technologies, ...etc.

Session 13: Basics of microscopy

Session 14~16: Introduction to organic light-emitting diode (OLED)

Session 17: Final

***The contents will be modified and adjusted during the course.

6. Evaluation(成績考核)

Midterm exams (30%), Final exam including a report (40%), Homework and class attendance and participation (30%)

7. Webpage(可連結之網頁位址)

No webpage available.