

**Course List for Doctor of Philosophy (Ph.D.) Degree Program
in Department of Computer Science and Information Engineering
Chang Gung University (for 2020 Calendar Year Admission), January 6th, 2020**
長庚大學資訊工程學系博士班 必選修科目表(109學年度入學學生適用) 109.01.06系務會議修訂

Area	Obligatory	Course Title	Total Credits	Year	1st Semester	2nd Semester
Common	✓	*Seminar (1) 學報討論(1)	1	1	1	
	✓	*Seminar (2) 學報討論(2)	1	1		1
	✓	*Seminar (3) 學報討論(3)	1	2	1	
	✓	*Seminar (4) 學報討論(4)	1	2		1
	✓	*English Technical Writing (1) 科技英文寫作(1)	1	1	1	
	✓	*English Technical Writing (2) 科技英文寫作(2)	1	1		1
	✓	*Scientific Writing 論文撰寫	0			
Professional		*Data Engineering 資料工程	3	1	3	
		*Service-Oriented Architecture (SOA) 服務導向應用系統設計	3	1	3	
		*Personal Communications 個人通訊	3	1	3	
		*High-Speed Networks and Applications 高速網路專論	3	1	3	
		*Selected Topics on Network System 網路系統專論	3	1	3	
		*Embedded Operating System 嵌入式作業系統	3	1	3	
		*System Performance Analysis 系統效能分析	3	1	3	
		*Advanced Computer Architecture 高等計算機架構	3	1		3
		*Digital Signal Processing 數位訊號處理	3	1	3	
		*Wireless Network 無線網路	3	1		3
		Objected-Oriented Software Engineering 物件導向軟體工程	3	1		3
		Computational Molecular Biology 計算生物學	3	1		3
		Speech and Image Processing 語音暨影像處理	3	1		3
		Parallel and Distributed Systems 平行與分散式系統	3	1		3
		*Cyber-Physical Systems 網宇實體系統	3	1		3
		*Selected Topics on Mobile Communications 行動通訊專論	3	1		3
		Multimedia Security 多媒體安全	3	1	3	

Remarks	<p>1. Graduation credits: <u>30</u> 畢業學分：30學分。</p> <p>(1) Compulsory credits: <u>6</u> (includin the 4 credits of Seminar and the 2 credits of English Technical Writing). 必修6學分(含學報討論4學分，科技英文寫作2學分)。</p> <p>(2) Elective credits: at least <u>18</u> credits from the above listed professional courses. Students are allowed to take up to 1 professional course (3 elective credits) from the doctoral courses given in the college of engineering. Other doctoral courses offered by non-college of engineering, students have to get the approval from the chairman of our department. 選修18學分。若須選修其他系所博士班課程者，以工學院所開設一門課程為限(3學分)。非工學院所開設博士班課程，須經系主任同意後，始得選修。</p> <p>(3) All students have to take the course Scientific Writing in every semester after the first year. The <u>6</u> credits of Dissertation will be awarded upon the completion of oral defense exam. 論文6學分(學位考試通過後給予)。</p> <p>2. Students from a country (or region) where English is not an official language are required to comply an English standard as posted by the College of Engineering. 須達英文畢業門檻方可畢業：英文能力檢定通過標準依據「長庚大學工學院博士班研究生英文能力檢測實施方案」實施。</p> <p>3. Seminar provides 1 credit for each semester in the first 4 semesters, and it is compulsory for all students who have not graduated in the first 4 semesters. 學報討論一、二年級為必修，合計4學分。畢業前至少需修習四個學期並通過。</p> <p>4. The courses are provided for Ph.D. and Master students. 博士班課程與碩士班課程共同開設。</p> <p>5. Courses with asterisk (*) are conducted in English. Other courses are lectured primarily in Chinese language. 星號(*)標示之課程為全英文授課，其他課程以中文授課為主。</p>
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