

**Course List for International Doctor of Philosophy (Ph.D.) Degree Program  
in Department of Computer Science and Information Engineering ,  
Chang Gung University (for 2019 Calendar Year Admission), May 13th, 2019**  
長庚大學資訊工程學系博士班 必選修科目表(108學年度入學學生適用) 108.05.13系務會議修訂

Area	Obligatory	Course Title	Total Credits	Year	1st Semester	2nd Semester
C o m m o n	✓	*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			
P r o f e s s i o n a l		*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	
R e m a r k s	1. Graduation credits: 30 (including the 6 credits of Dissertation). 畢業學分：30學分（含論文6學分）。					
	2. Compulsory credits: 6 (includin the 4 credits of Seminar and the 2 credits of English Technical Writing). 共同必修學分：6學分（不含論文）。（含學報討論4學分，科技英文寫作2學分）。					
	3. Elective credits: at least 18 from the above listed professional courses. 選修學分：至少需選修18學分。					
	4. 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. 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。					
	5. All students have to take the course Scientific Writing in every semester after the first year. The 6 credits of Dissertation will be awarded upon the completion of oral defense exam. 「論文撰寫」二年級以上博士生必修，「論文」6學分將於通過口試畢業時授予。					
	6. 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。					
	7. The courses are porvided for Ph.D. and Master students.博士班課程與碩士班課程共同開設。					
	8. 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。					