

**長庚大學 生物醫學工程學系碩士班 必選修科目表 (113學年度入學學生適用)**  
**Curriculum of MS Program at the Department of Biomedical Engineering, Chang Gung University**  
**(Applicable to students admitted in 2024)**

領域/組別	必/選修 Compul. / Elective Courses	科目名稱 Course Title	學分 Credits	開課 年級 Year	上學期 Fall Semester	下學期 Spring Semester	專業領域選修 Professional Area	必/選修 Compul. / Elective Courses	科目名稱 Course Title	學分 Credits	開課 年級 Year	上學期 Fall Semester	下學期 Spring Semester
<b>必修 Compulsory courses</b>	必修 Compulsory	學報討論 Seminar	4	一	2	2	<b>專業領域- 生醫材料與 感測 Biomaterials and Bio- sensing</b>	選修 Elective	生物醫學材料(碩博) Biomaterials	3	一	3	
	必修 Compulsory	生醫工程實驗 Basic Biomedical Engineering Experiments	1	一	1			選修 Elective	生物感測器技術(碩博) Biosensor Technology	3	一	3	
	必修 Compulsory	醫學工程概論(1)(2) Introduction to Biomedical Engineering(1)(2)	4	一	2	2		選修 Elective	生醫材料分析方法(含實驗)(碩 博) Analytic Methods for	1	一	1	
	必修 Compulsory	臨床工程概論 Introduction to Biomedical and Clinical Engineering	1	一		1		選修 Elective	微機電實驗(碩博) MEMS Micro Fabrication Lab	1	一	1	
	必修 Compulsory	學報討論 Seminar	4	二	2	2		選修 Elective	組織工程與再生醫學(碩博) Tissue Engineering and	3	一	3	
								選修 Elective	表面分析技術(學碩) Surface Analysis Technology	3	一	3	
<b>背景選修 (二選一) Background elective courses (either one)</b>	必修 Compulsory	工程數學 Engineering Mathematics	3	一		3		選修 Elective	奈米生物技術之醫學應用(學 碩) Applications of Nanobiotechnonlgy in Medicine	2	一	2	
	必修 Compulsory	生理學概論 Introduction to Physiology	3	一		3		選修 Elective	控制釋放技術(學碩) Controlled Release Technology	3			3
<b>院共構課程 College co- constructed courses</b>	選修 Elective	英語口說與報告(1)(2) English Speaking and Presentation(1)(2)	4	一	2	2		選修 Elective	生醫高分子(學碩) Introduction of Biopolymer	3	一		3
	選修 Elective	科技英文寫作(1)(2) English Technical Writing(1)(2)	2	一	1	1		選修 Elective	醫療器材設計與開發實務(碩) Biodesign	3	一		3
								選修 Elective	微流體生物晶片技術(碩博) Microfluidic Biochip Techology	3	一		3
								選修 Elective	細胞分子生物學(碩博) Molecular Biology of the Cell	3	一		3
								選修 Elective	醫療器材品質認證(學碩) The Evaluation and Quality System of Medical Devices	3	一		3
							<b>專業領域- 醫療機電與 力學 Medical Mechatronic s and Mechanics</b>	選修 Elective	骨科實驗力學(學碩) Experimental Mechanics for Orthopaedics	3	一	3	
								選修 Elective	醫療微機電(碩博) Medical MEMS	3	一	3	
								選修 Elective	輔具開發與植體設計(學碩) Technical Aids and Medical	3	一	3	
								選修 Elective	工程聲學(學碩) Sound and Acoustics	3	一	3	
								選修 Elective	醫療電子與控制(碩博) Medical Electronics and Control	3	一		3
								選修 Elective	生物力學(碩博) Biomechanics	3	一		3
								選修 Elective	聽力維護與噪音控制(學碩) Hearing Conservation and Noise Control	3	一		3
								選修 Elective	立體造型與智慧製造(碩博) 3D Modeling and Smart Manufacturing	2	一		2
								選修 Elective	快速成型實驗(學碩) Rapid Prototyping Labs	1	一		1
								選修 Elective	醫療器材品質認證(學碩) The Evaluation and Quality System of Medical Devices	3	一		3
							<b>專業領域- 生醫資訊與 影像 Biomedical Informatics and Imaging</b>	選修 Elective	生醫電子學(碩博) Biomedical Electronics	3	一	3	
								選修 Elective	醫學影像系統(碩博) Biomedical Imaging System	3	一	3	
								選修 Elective	醫學影像處理(碩博) Medical Imaging	3	一	3	
								選修 Elective	生醫訊號分析(碩博) Biomedical Signal Analysis	3	一	3	

							選修 Elective	生物資訊學(碩博) Bioinformatics	3	—	3	
							選修 Elective	程式設計(碩博) Programming Language	3	—		3
							選修 Elective	生醫光電技術(學碩) Bio- photonics Techniques	3	—		3
							選修 Elective	機器學習與其醫學應用(學碩) Machine Learning and Its Medical Applications	3	—		3
							選修 Elective	醫學影像與AI診斷(學碩) Medical Imaging Analysis and AI in Medical Diagnostics	3	—		3
							選修 Elective	快速成型實驗(學碩)Rapid Prototyping Labs	1	—		1
備註 Remark	<p>一、畢業學分：34學分。</p> <p>(1)必修14學分。</p> <p>(2)選修14學分(含背景選修二選一，本國生至少須修習單一專業領域三門選修課程)。</p> <p>(3)論文6學分(通過學位考試並繳交通過審核論文後給予)。</p> <p>二、須達英文畢業門檻方可畢業：依據「長庚大學工學院研究生英文能力檢測實施方案」實施。</p> <p>三、學報討論在學期間必修8學分，提前畢業者可免修「學報討論」，但仍須修足畢業學分。</p> <p>四、1.僅牙、醫學系畢業學生可申請免修「臨床工程概論」。2.「醫學工程概論」及「生醫工程實驗」大學部已修畢相關課程者得申請免選修。3.欲申請免修(1)及(2)相關課程，學生須依本系「課程免修申請辦法」提出申請，經核可得免修，但仍須修足畢業學分。</p> <p>五、背景選修二選一由指導老師指定修課，並於繳交「指導教授確認表」時由指導老師填寫確認，經指導老師確認並同意得免修，但仍須修足畢業學分。</p> <p>六、外籍生修習工學院內外系所英語授課專業領域課程，可予以承認為畢業學分數，但以畢業學分(不含論文6學分及【學報討論】)之50%為上限，所修習之課程需經指導教授同意並經課委會審查通過方得承認為畢業學分，本方案僅適用於經由外籍生管道入學之碩士班外籍生。</p> <p>七、可列入畢業學分之科目以本校醫學院及工學院開設之研究所課程為原則。</p>											
	<p>1. Graduation credits: 34</p> <p>(a) Credits for compulsory courses: 14</p> <p>(b) Credits for elective courses: 14 (including background elective courses (either one), and at least 3 elective courses from a single professional area)</p> <p>(c) Credits for thesis completion: 6 (given after passing Graduate Degree Examination and submitting approved dissertations)</p> <p>2. According to the "English Proficiency Requirements for Graduate Students of the College of Engineering, Chang Gung University", all graduate students must reach the English proficiency requirements for graduation.</p> <p>3. During the study period, 8 compulsory credits for the seminar must be completed. Those who graduate early may apply for exemption of "Seminar" course while 34 graduation credits are still required for graduation.</p> <p>4. (a) Only graduates from Department of Dentistry and School of Medicine are eligible to apply exemption of "Introduction to Biomedical and Clinical Engineering".</p> <p>(b) Those who have taken "Basic Biomedical Engineering Experiments" and "Introduction to Biomedical and Clinical Engineering" course in undergraduate program may apply for exemption for this course.</p> <p>(c) Students who apply for exemptions for the above courses must submit application to the department according to the "Regulations of Course Exemption". After the exemption application is approved, students still need to take enough credits for graduation.</p> <p>5. The background elective courses (either one) will be designated by the advisors. When submitting the "Advisor Confirmation Form", the advising professor will fill out the confirmation. Once the advisor confirms and agrees to the exemption, students must still complete the required credits for graduation.</p> <p>6. International students may take English-taught professional courses in the University. The credits will count toward graduation credits but no more than 50% of graduation credits (excluding the credits of master's thesis and "Seminars" courses). The taken courses will count toward graduation credits with approvals of advisor(s) and Departmental Curriculum Committee. This policy is valid only for international students in master's program.</p> <p>7. Only the graduate courses offered by the College of Medicine and the College of Engineering will be counted toward graduation credits.</p>											

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