

# 機械工程學系碩士班

109 學年度

最低修業年限	一年
應修學分數	24 學分(不含提升英文能力相關課程學分)
應修(應選)課程及符合畢業資格之修課相關規定	<ol style="list-style-type: none"> <li>1. 修業期間每學期均應修讀書報討論課程(雙聯學位及經本校核可出國進修者,在國外修業期間除外)。但修業超過四學期仍未畢業者,得最多修四學期之書報討論課程。</li> <li>2. 能源與熱流組:能源與熱流組碩士生需修畢以下核心課程至少二門:「高等應用數學」、「黏性流體力學」、「熱對流」、「熱傳導與熱輻射」、「紊流導論」、「<u>微流控與表面科學</u>」、「燃燒學概論」。</li> <li>3. 依據本校「國立交通大學學術倫理教育課程實施辦法」,入學後需至「臺灣學術倫理教育資源中心」平台修習學術倫理課程。未通過總測驗之學生不得申請學位考試。</li> </ol>
備註	<ol style="list-style-type: none"> <li>1. 其他未盡事宜,依據本系「碩士班研究生修業規章」辦理。</li> </ol>

## Graduate Institute of Mechanical Engineering

Academic Year 109

Minimum study period	One year
Required number of credits	24 credits (not including the credits of the courses related to the English Language Study)
Required courses and related regulations for course taking and graduation qualification	<ol style="list-style-type: none"> <li>1. A student should take the course of "Seminar" in every semester during the study period (except for the study period spent abroad by the student pursuing a double degree and approved by the University to study abroad). If the student has not yet graduated but his/her study period exceeds four semesters, the student can take the course of "Seminar" for four semesters at most.</li> <li>2. graduate students of the Energy and Thermofluids Group must choose at least two courses of the following core courses: Applied Math, Viscous Hydrodynamics, Heat Convection, Heat Conduction and Thermal Radiation, Introduction to Turbulence, <u>Microfluidics and Surface Science</u>, Combustion Fundamentals.</li> <li>3. Students should study the course "Academic Research Ethics Education" on the "Taiwan Academic Ethics Education Resource Center" platform. Students who fail to pass the final test cannot apply for degree exam.</li> </ol>
Note	<ol style="list-style-type: none"> <li>1. Anything which is not being noted in this document shall be coped with in accordance with the "Regulations of Master Program" of the Department.</li> <li>2. The Chinese version of the document shall prevail in case of any discrepancy or inconsistency between Chinese version and its English translation.</li> </ol>

# 機械工程學系博士班

109 學年度

最低修業年限	二年
應修學分數	18 學分(不含提升英文能力相關課程、抵免及免修之學分。但雙聯學位、學士班畢業逕讀博士班通過抵免及因修業期限屆滿未能畢業而重考入學之博士生除外。)
直升博士生應修學分數	36 學分(含碩士班及學士班畢業逕讀博士班通過抵免之學分)
應修(應選)課程及符合畢業資格之修課相關規定	<p>一、至少修滿四學期之書報討論(並於書報討論課程中至少報告一次)</p> <p>二、須通過本系「博士班學生英語能力鑑定辦法施行細則」規定之鑑定。</p> <p>三、依據本校「國立交通大學學術倫理教育課程實施辦法」，入學後需至「臺灣學術倫理教育資源中心」平台修習學術倫理課程。未通過總測驗之學生不得申請學位考試。</p> <p>四、課程基本能力考核</p> <p>(甲)以碩士資格報名入學(含逕讀博士班)者適用</p> <p>考核科目：</p> <ol style="list-style-type: none"> <li>1.能源與熱流組： <ul style="list-style-type: none"> <li>「黏性流體力學」必修。</li> <li>「熱對流」、「熱傳導與熱輻射」、「紊流導論」、「<b>微流控與表面科學</b>」、「燃燒學概論」、「高等應用數學」六科選三，及非本組教師開授研究所專業課程至少一門。</li> </ul> </li> <li>2.固力與控制組： <ul style="list-style-type: none"> <li>「彈性力學」、「高等動力學」、「有限單元(元素)法」等三科必修或「線性系統」、「高等動力學」、「數位控制系統」三科必修，及非本組教師開授研究所專業課程至少一門。</li> </ul> </li> <li>3.設計與製造組： <ul style="list-style-type: none"> <li>「最佳設計」、「應用生物力學」、「機器人學」、「應用塑性力學」、「工程流變學」、「機電系統設計與實務」、「工程設計法」、「人體神經力學」、「微機電製程實驗」、「智慧型材料與奈微米元件」等科目中至少選三門，及非本組教師開授研究所專業課程至少一門。</li> </ul> </li> <li>4.微奈米工程組： <ul style="list-style-type: none"> <li>「微奈米工程導論」必修，</li> <li>「微機電製程實驗」、「微奈米尺度能量傳遞」、「智慧型材料與奈微米元件」、「生物感測器」、「生物晶片與生物檢測」、「生物流體力學」、「微流體系統與應用」等科目至少選二門。</li> </ul> </li> </ol> <p>考核標準：80 分。</p> <p>考核科目若因課程刪減、停開或名稱變動，導致無法修課者，得由指導教授建議，經教學與課程委員會同意後，另適用該組新增之考核科目。</p> <p>(乙)以醫學士資格報名入學者適用</p> <p>指導教授依研究主題需要指定之 4 門研究所課程，考核標準 70 分。</p>
備註	其他未盡事宜，依據本系「博士班研究生修業規章」辦理。

# PhD Program of Mechanical Engineering

Academic Year 109

Minimum study period	Two years
Required number of credits	18 credits (not including credits of the courses related to the English Language Study, transferrable credits and waivers, but a double degree, approved waivers of the students enrolled in the PhD program right after their graduating from the undergraduate program and the newly enrolled PhD student who failed to graduate by the end of the study period are the exceptions.)
Required number of credits for PhD students graduating directly from undergraduate program	36 credits (including the credits of master program and approved waivers of the students enrolled in the PhD program right after their graduation from the undergraduate program)
Required courses and related regulations for course taking and graduation qualification	<p>I. The course of "Seminar" has to be fully taken at least for four semesters (and each student has to make a presentation at least one time in the course of Seminar).</p> <p>II. Students must pass the accreditation of "Executive Details of the Accreditation Measures for PhD Students' English Competence."</p> <p>III. Students should study the course "Academic Research Ethics Education" on the "Taiwan Academic Ethics Education Resource Center" platform. Students who fail to pass the final test cannot apply for degree exam.</p> <p>IV. Evaluation of basic competence of the courses</p> <p>(a) Apply to the students enrolled with a master degree (including the students enrolled in the PhD program right after graduating from the undergraduate program)</p> <p>Exam Courses:</p> <p>1. Energy and Thermofluids Group:</p> <p>(A) "Viscous Fluid Flow" is a required course.</p> <p>(B) Choose three of the following six courses: Heat Convection, Heat Conduction and Thermal Radiation, Introduction to Turbulent Flow, <a href="#">Microfluidics and Surface Science</a>, Combustion Fundamentals, Advanced Applied Math.</p> <p>(C) Choose at least one graduate professional course offered by instructors outside the group.</p> <p>2. Solid Mechanics and Control Group:</p> <p>(A) All three courses- Elasticity, Advanced Dynamics and Finite Unit (Element) Method are required, or all three courses- Linear Systems Theory, Advanced Dynamics and Digital Control System, are required.</p> <p>(B) Choose at least one graduate professional course offered by instructors outside the group.</p> <p>3. Design and Manufacturing Group:</p> <p>(A) Choose at least three of the following courses: Optimum Designs, Occupational Biomechanics, Robotics, Applied Plastic Mechanics, Engineering Rheology, Mechatronic Systems Design and Practice, Engineering Design, Human Neuromechanics, Micro Fabrication Laboratory, Smart Materials and Intelligent Nano/Micro Devices.</p> <p>(B) Choose at least one graduate professional course offered by instructors outside the group.</p> <p>4. Micro and Nano Engineering Group:</p> <p>"Introduction to Micro/Nano Engineering" is a required course. Among the courses of "Micro Fabrication Laboratory," "Micro/Nano scale Energy Transport," "Smart Materials and Intelligent Micro/Nano Devices," "Biosensors," "Biochip and Chip Based Diagnosis", "Biofluid Mechanics," and "Microfluidic System and Applications" at least two courses must be selected.</p> <p>The standard of evaluation: 80.</p> <p>If exam courses are no longer available due to courses being canceled, no longer offered or name changed, students may use other exam courses newly offered in their group as</p>

	<p>recommended by their advisor and upon approval by the Teaching and Curriculum Committee.</p> <p>(b) Apply to the students enrolled with Bachelor of Medicine qualification</p> <p>Basic Course Competency Exam: Based on the research topic, the advisor will designate 4 graduate courses. The criterion is 70 points.</p>
Note	<ol style="list-style-type: none"><li>1. Anything which is not being noted in this document shall be coped with in accordance with the "Regulations of Master Program" of the Department.</li><li>2. The Chinese version of the document shall prevail in case of any discrepancy or inconsistency between Chinese version and its English translation.</li></ol>