

工學院學士班工程技術全英語學程 114 學年度入學學生必修科目、學分數暨畢業總學分表

## Interdisciplinary Program of Engineering-Engineering Technology (English-Taught Program)

### Compulsory course、Credits & Graduation threshold for Admission in 2025 Fall

| 類別 Type                                          | 科目名稱 Courses                                         |                                    | 學分數 Credits |               | 備 註 Remarks                                                                                                                                                                                                                      |
|--------------------------------------------------|------------------------------------------------------|------------------------------------|-------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                  |                                                      |                                    | 上學期<br>Fall | 下學期<br>Spring |                                                                                                                                                                                                                                  |
| 校定必修<br>University<br>Compulsory<br>(30 Credits) | 大學中文 College Chinese                                 |                                    | 2           |               | 修讀華語課程得免修大學中文，請參考國立清華大學外國學生修讀華語課程實施要點。<br>Students who complete Mandarin courses are exempt from taking the "College Chinese" required course. Please refer to the Mandarin Course Requirements for NTHU International Students. |
|                                                  | 英文 English                                           |                                    | 8           |               | 英文能力檢定通過者，得依學校規定申請免修或減修，請參照語文中心網頁。<br>Students who pass the official English Proficiency tests could waive credits. Please refer to the attachment of NTHU Center of Language Education.                                         |
|                                                  | 通識課程<br>General<br>Education<br>Course               | 核心通識<br>Core General               | 8-12        |               | 至少修畢四門核心通識課程，並須含括四個核心向度。可由 IBP 或本系通識課程抵免。<br>Students are required to register for four Core courses from at least four dimensions. Students may take GE courses given by IBP and IPE.                                           |
|                                                  |                                                      | 選修科目<br>Elective Course            | 8-12        |               | 自由選修，可由 IBP 或本系通識課程抵免。<br>Free electives. Students may take GE courses given by IBP and IPE.                                                                                                                                     |
|                                                  |                                                      | 合 計 Total                          | 20          |               |                                                                                                                                                                                                                                  |
|                                                  | 體育 Physical Education                                |                                    | 0           |               | 1 至 3 年級必修<br>A required course for freshmen to juniors                                                                                                                                                                          |
|                                                  | 操行 Conduct                                           |                                    |             |               | 每學期成績及格<br>Will be graded each term                                                                                                                                                                                              |
| 學士班必修<br>Program<br>Compulsory<br>(14 Credits)   | 微積分 B 一<br>Calculus I                                | 微積分 B 二<br>Calculus II             | 3           | 3             |                                                                                                                                                                                                                                  |
|                                                  | 普通物理 B 一<br>General Physics B (I)                    | 普通物理 B 二<br>General Physics B (II) | 3           | 3             |                                                                                                                                                                                                                                  |
|                                                  | 普通物理實驗<br>General Physics Laboratory                 |                                    | 1           |               |                                                                                                                                                                                                                                  |
|                                                  | 專題 Undergraduate Research                            |                                    | 1           |               | 可由院內四系大學部專題課程抵免。<br>Students could also take courses given by CHE, PME, MS and IEEM.                                                                                                                                             |
| 基礎選修<br>Basic Courses<br>(23 Credits)            | 普通化學一、二<br>General Chemistry (I), (II)               |                                    | 3           | 3             | 普通化學一(CHE)、普通化學二(CHE)、普通化學一(MSE)、普通化學二(MSE)                                                                                                                                                                                      |
|                                                  | 普通化學實驗<br>General Chemistry Laboratory               |                                    | 1           |               |                                                                                                                                                                                                                                  |
|                                                  | 質能均衡 Material and Energy Balance                     |                                    |             | 3             |                                                                                                                                                                                                                                  |
|                                                  | 材料科學與工程一、二<br>Material Science and Engineering I, II |                                    | 3           | 3             |                                                                                                                                                                                                                                  |
|                                                  | 計算機程式語言<br>Introduction to Programming Languages     |                                    | 3           |               | 計算機程式語言 (IEEM)、程式設計(PME)                                                                                                                                                                                                         |
|                                                  | 工作研究 Work Study                                      |                                    |             | 3             |                                                                                                                                                                                                                                  |
|                                                  | 工程數學一、二<br>Engineering Mathematics I, II             |                                    | 3           | 3             |                                                                                                                                                                                                                                  |
|                                                  | 熱力學 Thermodynamics                                   |                                    | 3           |               | 化工熱力學(CHE)、基礎熱流學一(PME)、材料熱力學一(MSE)                                                                                                                                                                                               |

| 類別 Type                                |           | 科目名稱 Courses                                                      | 學分數 Credits |            | 備註 Remarks                                                 |
|----------------------------------------|-----------|-------------------------------------------------------------------|-------------|------------|------------------------------------------------------------|
|                                        |           |                                                                   | 上學期 Fall    | 下學期 Spring |                                                            |
| 基礎選修<br>Basic Courses<br>(23 Credits)  |           | 應用力學一 Applied Mechanics I                                         | 2           |            |                                                            |
|                                        |           | 機械製造 Manufacturing Processes                                      | 3           |            |                                                            |
|                                        |           | 電工原理 Principles of Electrical Engineering                         | 3           |            | 電路學(PME)、電工原理(MSE)                                         |
|                                        |           | 工程經濟 Engineering Economics                                        | 3           |            |                                                            |
|                                        |           | 生物技術概論 Introduction to Biotechnology                              | 3           |            |                                                            |
| 專業核心課程<br>Core Courses<br>(24 Credits) | 化工<br>CHE | 物理化學一、二<br>Physical Chemistry (I), (II)                           | 3           | 3          | 1 Major field: 15 credits<br>+<br>1 Minor field: 9 credits |
|                                        |           | 化工熱力學<br>Chemical Engineering Thermodynamics                      | 3           |            |                                                            |
|                                        |           | 程序控制 Process Control                                              |             | 3          |                                                            |
|                                        |           | 化工單操<br>Chemical Engineering Unit Operations                      |             | 3          |                                                            |
|                                        |           | 化學反應工程<br>Chemical Reaction Engineering                           | 3           |            |                                                            |
|                                        |           | 儀器分析及實驗一<br>Instrumental Analysis and Lab.(I)                     | 3           |            |                                                            |
|                                        |           | 輸送現象及單元操作一、二<br>Transport Phenomena and Unit Operations (I), (II) | 3           | 3          |                                                            |
|                                        |           | 材料科學 Materials Science                                            | 3           |            |                                                            |
|                                        |           | 程序設計 Process Design                                               | 3           |            |                                                            |
|                                        |           | 生物技術概論<br>Introduction to Biotechnology                           | 3           |            |                                                            |
|                                        | 動機<br>PME | 基礎熱流學二 Thermal and Fluid Science II                               |             | 3          |                                                            |
|                                        |           | 電路學 Electric Circuits                                             | 3           |            |                                                            |
|                                        |           | 應用力學二 Applied Mechanics (II)                                      |             | 2          |                                                            |
|                                        |           | 材料力學 Mechanics of Materials                                       | 3           |            |                                                            |
|                                        |           | 機動學 Kinematics of Machinery                                       |             | 3          |                                                            |
|                                        |           | 機械製造 Manufacturing Processes                                      | 3           |            |                                                            |
|                                        |           | 控制系統一 Control System I                                            | 3           |            |                                                            |
|                                        |           | 能源工程 Energy Engineering                                           | 3           |            |                                                            |
|                                        |           | 電子學 Electronics                                                   | 3           |            |                                                            |
|                                        |           | 奈米科技與應用<br>Nanotechnology and its applications                    |             | 3          |                                                            |
|                                        |           | 振動學 Mechanical Vibrations                                         |             | 3          |                                                            |
|                                        |           | 機械設計 Machine Design                                               | 3           |            |                                                            |
|                                        |           | 光機電系統設計<br>Opto-Mechatronic Systems Design                        |             | 3          |                                                            |
|                                        |           | 工程光學 Engineering Optics                                           |             | 3          |                                                            |
|                                        |           | 智慧製造導論<br>Introduction of Intelligent Manufacturing               |             | 3          |                                                            |
|                                        |           | 電腦輔助設計與製造<br>Computer Aided Design and Manufacturing              | 3           |            |                                                            |

| 類別 Type                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 科目名稱 Courses                                                         | 學分數 Credits |                                                                                                            | 備註 Remarks                                                 |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                      | 上學期 Fall    | 下學期 Spring                                                                                                 |                                                            |
| 專業核心課程<br>Core Courses<br>(24 Credits)           | 材料 MSE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 材料科學與工程二<br>Material Science and Engineering II                      |             | 3                                                                                                          | 1 Major field: 15 credits<br>+<br>1 Minor field: 9 credits |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 材料熱力學二<br>Thermodynamics of Materials II                             |             | 3                                                                                                          |                                                            |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 材料分析 Materials Analysis                                              |             | 3                                                                                                          |                                                            |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 結晶繞射概論<br>Introduction to Crystal Structure and Diffraction Theories | 3           |                                                                                                            |                                                            |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 機械性質 Mechanical Properties                                           | 3           |                                                                                                            |                                                            |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 材料之物理性質<br>The Physical Properties of Materials                      |             | 3                                                                                                          |                                                            |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 量子物理導論<br>Introduction to Quantum Physics                            | 3           |                                                                                                            |                                                            |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 晶體缺陷<br>Various Defects in Crystalline Materials                     |             | 3                                                                                                          |                                                            |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 應用光電子學 Applied Photonics                                             | 3           |                                                                                                            |                                                            |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 擴散與相變化<br>Diffusion and phase transformation                         |             | 3                                                                                                          |                                                            |
|                                                  | 工工 IEEM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 線性代數 Linear Algebra                                                  |             | 3                                                                                                          |                                                            |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 離散數學 Discrete Mathematics                                            | 3           |                                                                                                            |                                                            |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 機率論 Probability Theory                                               | 3           |                                                                                                            |                                                            |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 工程經濟 Engineering Economics                                           | 3           |                                                                                                            |                                                            |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 生產計劃與管制<br>Production Planning and Control                           |             | 3                                                                                                          |                                                            |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 作業研究 Operation Research                                              | 3           |                                                                                                            |                                                            |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 人因工程一 Human Factors (I)                                              | 3           |                                                                                                            |                                                            |
| 專業選修<br>Professional Electives<br>(21 Credits)   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                      | 21          | 工學院內課程任選至少 7 門並達 21 學分<br>Choose at least 7 courses from the College of Engineering and achieve 21 credits |                                                            |
| 其餘選修<br>Free Electives<br>(16 Credits)           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                      | 16          |                                                                                                            |                                                            |
| 最低畢業總學分<br>Minimum Credits Needed for Graduation |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                      | 128         |                                                                                                            |                                                            |
| 備註<br>Remarks                                    | 1. 中五學制學生畢業總學分應另增加 12 學分，詳細內容請洽詢國際班辦公室。<br>If you're in the Form 5 school system (Take 5 years to complete Junior High School and High School,) you have to take an extra 12 credits for graduation. Please check the details with the International Bachelor Degree Program office.<br>2. 114 學年度入學學生可以依據 115 學年度的修課及學分規範修習。<br>Students admitted in Academic Year 114 may follow the requirements of Academic Year 115.<br>3. 完成一門課程之學分僅能被認採入一種類別。<br>A course can only be considered in a specific type when fulfilling graduation requirements. (A course can not be double counted.) |                                                                      |             |                                                                                                            |                                                            |