

國立台灣科技大學 114學年 第2學期 課程大綱

Spring 2026 NTUST Course Outline

授課教師：劉一字

Instructor: Yi-Yu Liu

課程名稱：數位電子導論

Course Title : Introduction to Digital Electronics

2026/6/22

<p>課程代號： CS1011301 Course Code</p> <p>學分數： 3 Credits</p>	<p>必選修：必修/半學年 Required/Electve:Required/Half Yr.</p> <p>先修課程： Prerequisites</p>
<p>節次教室： R3(TR-313) R4(TR-313) T2(TR-313) Time/Location</p>	
<p>專業核心能力： <input checked="" type="checkbox"/> 具備數理與邏輯推演能力 Core Professional Competencies <input checked="" type="checkbox"/> 熟悉資訊專業基礎理論</p>	
<p>課程網址： Course Website</p>	
<p>課程宗旨： The objective of this course is to expose students basic concepts of passive and active electronic components, and digital components. By means of software-based simulation and implementation, the course contents consolidate the fundamental knowledge of digital system design.</p> <p>Course Objectives</p> <p>本課程目標讓學生能夠具備 (1) 電路元件、(2) 電子元件、(3) 數位元件。透過軟體模擬及晶片設計軟體的實作，奠定數位系統設計之基礎能力。</p>	
<p>課程大綱： Outline of Lectures</p> <ol style="list-style-type: none"> <li>1. 簡介</li> <li>2. 感測器與致動器</li> <li>3. 訊號傳輸</li> <li>4. 電路元件 (電阻, 電容, 電感)</li> <li>5. 交流電</li> <li>6. 濾波器</li> <li>7. 半導體二極體</li> <li>8. 場效電晶體</li> <li>9. 數位元件</li> <li>10. 數字系統, 補數, 有號數</li> <li>11. 二元編碼</li> <li>12. 布林代數和布林函數</li> <li>13. 正則與標準形式</li> </ol> <ol style="list-style-type: none"> <li>1. Introduction</li> <li>2. Sensor and actuator</li> <li>3. Transmission</li> <li>4. Circuit components (R, C, L)</li> <li>5. Alternating current</li> <li>6. Filter</li> <li>7. Semiconductor diode</li> <li>8. Field effect transistor</li> <li>9. Digital component</li> <li>10. Number system, complement, signed number</li> <li>11. Binary codes</li> <li>12. Boolean algebra and Boolean function</li> <li>13. Canonical and standard forms</li> </ol>	
<p>授課方式： 講授 Lecture：90% Method of Instruction 分組討論 Group discussion：0%</p>	

	案例研討 Case study : 0% 操做練習 Practical exercises : 10% 講授 Lecture : %
教科書 : Textbooks	1. Electrical & Electronic Systems, Neil Storey 2. Digital Design, M. Morris Mano and Michael D. Ciletti
參考書目 : References	1. Electronics For Dummies (UK Edition) Dickon Ross, Cathleen Shamieh, and Gordon McComb Free online e-book is available 2. Foundations of Analog and Digital Electronic Circuits Anant Agarwal and Jeffrey Lang Online copy is available if you get enrolled in MIT 6002 via edX <a href="https://courses.edx.org/">https://courses.edx.org/</a>
修課須知 : Notice	
評量方式 : Grading	Project: 50% (50%-60%) Midterm Exam: 25% (20%-25%) Final Exam: 25% (20%-25%)
備註說明 : Notes	Introduction to Computer Science Basic C/C++ Programming Language Programming in Linux Environment