

科目名稱	參考用書	備註
工程數學	<p>參考用書： Advanced Engineering Mathematics, O'Neil.</p> <p>考試大綱：</p> <ol style="list-style-type: none"> <li>1. First-Order Differential Equations.</li> <li>2. Linear Second-Order Equations.</li> <li>3. The Laplace Transform</li> <li>4. Series Solutions.</li> <li>5. Vectors And Vector Spaces.</li> <li>6. Matrices And Linear Systems.</li> <li>7. Determinants.</li> <li>8. Eigenvalues.</li> <li>9. Vector Differential Calculus.</li> <li>10. Vector Integral Calculus.</li> </ol>	
自動控制	<p>參考用書： Automatic Control Systems, B.C. Kuo</p> <p>考試大綱：</p> <ol style="list-style-type: none"> <li>1. Mathematical Foundation</li> <li>2. Block Diagram and Signal-Flow Graphs</li> <li>3. Modeling of Physical Systems</li> <li>4. State Variable Analysis</li> <li>5. Stability of Linear Control Systems</li> <li>6. Time-Domain Analysis of Control Systems</li> <li>7. Root-Locus Technique</li> <li>8. Frequency-Domain Analysis</li> <li>9. Design of Control Systems</li> </ol>	
製造學	<p>參考用書： Manufacturing Engineering and Technology, Serope Kalpakjian, Steven R. Schmid</p> <p>考試大綱：</p> <ol style="list-style-type: none"> <li>1. Nonferrous Metals and Alloys: Production, General Properties, and Applications</li> <li>2. Ceramics, Graphite, Diamond, and Nanomaterials: Structure, General Properties, and Applications</li> <li>3. Ceramics, Glasses, and Superconductors: Processing and Equipment</li> <li>4. Rapid-Prototyping Processes and Operations</li> <li>5. Fundamentals of Machining</li> <li>6. Advanced Machining Processes</li> <li>7. Fabrication of Microelectronic Devices</li> <li>8. Fabrication of Microelectromechanical Devices and Systems and Nanoscale Manufacturing</li> <li>9. Brazing, Soldering, Adhesive-Bonding, and Mechanical-Fastening Processes</li> <li>10. Surface Treatments, Coatings, and Cleaning</li> <li>11. Automation of Manufacturing Processes</li> <li>12. Computer-Aided Manufacturing</li> </ol>	

<p>工程力學 (靜力學、動力學)</p>	<p>參考用書： 1. Engineering Mechanics: Statics, by R. C. Hibbeler 2. Engineering Mechanics: Dynamics, by R. C. Hibbeler 考試大綱： 1. Equilibrium of a Particle 2. Equilibrium of a Rigid Body 3. Structural Analysis 4. Friction 5. Virtual Work 6. Kinematics of a Particle 7. Kinetics of a Particle: Force and Acceleration 8. Kinetics of a Particle: Work and Energy 9. Kinetics of a Particle: Impulse and Momentum 10. Planar Kinematics of a Rigid Body 11. Planar Kinetics of a Rigid Body: Force and Acceleration 12. Planar Kinetics of a Rigid Body: Work and Energy 13. Planar Kinetics of a Rigid Body: Impulse and Momentum</p>	
<p>材料學</p>	<p>參考用書： 1. Materials Science and Engineering by William D. Callister, David G. Rethwisch, WILEY. 2. The Science and Engineering of Materials by Donald R. Askeland, Pradeep P. Phule, International student edition, THOMSON. 考試大綱： 1. Atomic structure and interatomic bonding 2. The structure of crystalline solids 3. Imperfections in solids 4. Diffusion 5. Mechanical properties of metals 6. Dislocations and strengthening mechanisms 7. Failure 8. Principles of solidification 9. Phase diagrams 10. Phase transformation: development of microstructure and alteration of mechanical properties 11. Application and processing of metal alloys</p>	
<p>熱力學</p>	<p>參考用書： Fundamental of Engineering Thermodynamics / Moran Shapiro 考試大綱： 1. Basic concept and definitions; 2. Evaluating properties; 3. Conservation of mass and energy – the first law of thermodynamics 4. Fundamental concept of thermodynamic cycles 5. Second law of thermodynamics and entropy 6. Irreversibility and exergy analyses 7. Application of gas and vapor cycles</p>	

電子學	<p>參考用書：</p> <ol style="list-style-type: none"> <li>1. Electronic Devices conventional current Version, Thomas L. Floyd</li> <li>2. Electronic foundational: Circuits, Devices, and Applications, Thomas L. Floyd</li> <li>3. Electronic Devices and Circuit theory, Robert L. Boylestad Louis Nashelsky</li> </ol> <p>考試大綱:</p> <ol style="list-style-type: none"> <li>1. Basic circuit (including, series circuit, parallel circuit, power calculation)</li> <li>2. Thevenin's theorem and Norton's theorem</li> <li>3. RC circuit (charge and discharge circuit)</li> <li>4. Concept of P Type and N type device structure</li> <li>5. Diode devices</li> <li>6. Concept and application of Transistor (including, IJBT or Mos FET control)</li> <li>7. Transistor on-off and power control circuit</li> <li>8. Basic OP-amp application</li> <li>9. OP-amp circuits calculation (positive feedback and negative feedback)</li> <li>10. Thyristor and basic application</li> </ol>	
工廠管理	<p>參考用書：</p> <ol style="list-style-type: none"> <li>1. 生產管理 / 李鈞、李文明編著 / 普林斯頓有限公司</li> <li>2. Operations Management, 11e, William Stevenson / 華泰圖書、滄海圖書</li> </ol> <p>考試大綱:</p> <ol style="list-style-type: none"> <li>1. 競爭力、策略與生產力</li> <li>2. 預測</li> <li>3. 產品與服務設計</li> <li>4. 產品與服務之策略性產能規劃</li> <li>5. 製程選擇與設施佈置</li> <li>6. 工作設計與衡量</li> <li>7. 地點規劃與分析</li> <li>8. 品質管理與管制</li> <li>9. 總體規劃與主排程</li> <li>10. MRP 與 ERP</li> <li>11. 存貨管理</li> <li>12. JIT 與精實作業</li> <li>13. 供應鏈管理</li> </ol>	102 學年起 新生適用
創新設計	<p>參考用書</p> <ol style="list-style-type: none"> <li>1. Creative design of mechanical devices by Hong-Sen Yan, Springer</li> </ol> <p>考試大綱:</p> <ol style="list-style-type: none"> <li>1. Mechanical devices</li> <li>2. Creative problem solving techniques</li> <li>3. A creative design methodology</li> </ol> <p>參考用書</p> <ol style="list-style-type: none"> <li>2. Hands-on systematic innovation for technical systems by Darrell Mann, IFR press</li> </ol> <p>考試大綱</p> <ol style="list-style-type: none"> <li>1. Process overview of TRIZ (Theory of inventive principle)</li> <li>2. Problem Definition ( Problem / opportunity Explorer/ Function &amp; Attribute Analysis)</li> <li>3. Problem solving tools (Technical contradiction/ inventive principles)</li> <li>4. Problem Solving Tools (physical contradiction)</li> <li>5. Solution Evaluation</li> </ol>	102 學年起 新生適用

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