## 機電學院機電科技博士班機械組(機電組)資格考基礎科目參考用書 Reference Books and Scope for Qualify (for Mechatronic Engineering Division)

科目名稱 Subject	參考用書 Reference Books	備註
工程數學 Engineering Mathematics	參考用書:	
	Advanced Engineering Mathematics, O'Neil.	
	考試大綱:	
	1. First-Order Differential Equations.	
	2. Linear Second-Order Equations.	
	3. The Laplace Transform	
	4. Series Solutions.	
	5. Vectors And Vector Spaces.	
	6. Matrices And Linear Systems.	
	7. Determinants.	
	8. Eigenvalues.	
	9. vector Differential Calculus.	
	10. vector Integral Calculus. 会 之田 書・	
	今万 巾 盲 · Automatic Control Systems BC Kuo	
	Automatic Control Systems, B.C. Kuo	
自動控制	了政人啊. 1 Mothematical Foundation	
	2 Block Diagram and Signal Flow Graphs	
	3 Modeling of Physical Systems	
Automatic	4 State Variable Analysis	
Control	5. Stability of Linear Control Systems	
	6. Time-Domain Analysis of Control Systems	
	7.Root-Locus Technique	
	8.Frequcecy-Domain Analysis	
	9.Design of Control Systems	
	<b>参考用書</b> :	
	Manufacturing Engineering and Technology, Serope Kalpakjian, Steven R.	
	Schmid	
製造學 Manufacturing Processes	考試大綱:	
	1. Nonferrous Metals and Alloys: Production, General Properties, and	
	Applications	
	2. Ceramics, Graphite, Diamond, and Nanomaterials: Structure, General	
	Properties, and Applications	
	3. Ceramics, Glasses, and Superconductors: Processing and Equipment	
	4. Rapid-Prototyping Processes and Operations	
	5. Fundamentals of Machining 6. Advanced Machining Processes	
	7 Eabrication of Microelectronic Devices	
	8 Fabrication of Microelectromechanical Devices and Systems and	
	Nanoscale Manufacturing	
	9. Brazing, Soldering, Adhesive-Bonding, and Mechanical-Fastening	
	Processes	
	10. Surface Treatments, Coatings, and Cleaning	
	11.Automation of Manufacturing Processes	
	12. Computer-Aided Manufacturing	

北 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 Particle         2. Equilibrium of a Rigid Body         3. Structural Analysis         Mechanics         4. Friction         5. Virtual Work         6. Kinemics 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 Kinetics of a Rigid Body         11. Planar Kinetics of a Rigid Body         12. Planar Kinetics of a Rigid Body         13. Planar Kinetics of a Rigid Body         14. Atomic structure and Engineering by William D. Callister, David G. Rethwisch, WILEY.         2. The Science and Engineering by William D. Callister, David G. Rethwisch, WILEY.         3. Imperfections in solids         Science and         4. Diffusion         5. Mechanical properties of metals         6. Dislocations and strengthening mechanisms         7. Fai
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Thermodynamics 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
參考用書:
1.Electronic Devices conventional current Version, Thomas L. Floyd
2.Electronic foundational: Circuirs, Devices, and Applications, Thomas L.
电丁字 Floyd
Electronics 3.Electronic Devices and Circuit theory, Robert L. Boylestad Louis Nashelsky
考試大綱:
1. Basic curcuit (including, series circuir, parallel circuit, power calculation)

2. Thevenin's theorem and Norton's theorem	
3. RC circuit (charge and discharge circuit)	I
4. Concept of P Type and N type device structure	I
5. Diode devices	I
6. Concept and application of Transistor (including, IJBT or Mos FET	1
control)	I
7. Transistor on-off and power control circuit	I.
8. Basic OP-amp application	i i
9. OP-amp circuits caculation (positive feedback and negative feedback)	I
10. Thyristor and basic application	1
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