

機電學院機電科技博士班車輛組資格考基礎科目參考用書

Reference Books and Scope for Qualify (for Vehicle Engineering Division)

一、設計與分析組(Design and Analysis Category)

科目名稱 Subject	參考用書 Reference Books	考綱 Contents	備註
振動學 Mechanical Vibration	Mechanical Vibrations,S. S. Rao, Prentice-Hall, Inc.	<ol style="list-style-type: none"> 1. Free vibration and forced vibration of vibration systems 2. Modal analysis of vibration systems 3. Vibration of continuous systems 4. Vibration control 	
車輛動力學 Vehicle Dynamics	Theory of Ground Vehicle, J. Y. Wang, John Wiley & Sons, Inc. (Ch.1, 3, 5, 7)	<ol style="list-style-type: none"> 1. Mechanics of Pneumatic Tires 2. Performance Characteristics of Road Vehicles 3. Handling Characteristics of Road Vehicles 4. Vehicle Ride Characteristics 	
材料力學 Mechanics of Materials	Mechanics of Materials,Ferdinand P. Beer, E. Russell Johnston, JR, John T. Dewolf, McGraw-Hill Book Co.	<ol style="list-style-type: none"> 1. Stress and Strain 2. Torsion 3. Pure Bending 4. Analysis and Design of Beams for Bending 5. Shearing Stresses 6. Transformations of Stress and Strain 7. Principal Stresses 8. Deflection of Beams 9. Columns 	

二、機電與控制組(Mechatronics and Control Category)

科目名稱 Subject	參考用書 Reference Books	考綱 Contents	備註
自動控制 Automatic Control	Feedback Control of Dynamic Systems, G.F. Franklin, J.D. Powell, and A. Emami-Naeini, Pearson.	Fundamental Mathematics of Control Theory, Dynamic Models and Transfer Functions, Time-domain Analysis, Stability Analysis, Analysis and Design of Root-locus, Analyses of Bode and Nyquist Plots, PID Controller Design, Lead-Lag Controller Design, State-space Representation, Stability Analysis, Full-state Feedback Control Design	
電機學 Electric Machinery	Electric Machinery Fundamentals , Stephen Chapman	DC/AC circuit analysis, Electromagnetic effect, Transformers, AC machinery fundamentals, Synchronous machines, Induction motors, DC machinery fundamentals, and DC motors.	
電子學 Electronics	Electronic Devices (Conventional Current Version) , Thomas L. Floyd	Introduction to Semiconductors, Diodes and Applications, Special-Purpose Diodes, Bipolar Junction Transistors, Transistor Bias Circuits, BJT Amplifiers, BJT Power Amplifiers, Field-Effect Transistors (FETs)	

三、動力與能源組(Energy and Power Category)

科目名稱 Subject	參考用書 Reference Books	考綱 Contents	備註
熱力學 Thermodynamics	Fundamentals of Thermodynamics Claus Borgnakke , Richard E. Sonntag	Basic Concepts of thermodynamics , Introductory Concepts and Definitions, The First Law of Thermodynamics: Closed systems, Work, Heat, Properties of Pure Substances, Pure Substance, Ideal gas, The First Law of Thermodynamics: Control Volumes, The Second Law of Thermodynamics, Reversible and Irreversible Processes The Carnot Cycle Using Entropy, Entropy, The Increase of Entropy Principle	
流體力學 Fluid mechanics	Fundamentals of Fluid Mechanics Bruce R. Munson ,Donald F. Young	Basic Concepts of Fluid , Introductory Concepts and Definitions, Fluid Statics, The Bernoulli equation, Fluid Kinematics Finite Control Volume Analysis, Differential Analysis of Fluid Flow Dimensional Analysis Viscous Flow in Pipes	
熱傳學 Heat Transfer	Fundamentals of Heat and Mass Transfer, By: Frank P. Incropera, David P. Dewitt, Theodore L. Bergman, Adrienne S. Lavine	Essential Concepts Steady State, 1-Dimensional Conduction Time-Dependent Conduction Fundamental Concepts of Convection External Force Convection Internal Force Convection Natural Convection Heat Exchange Devices	