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

一、設計與分析組

科目名稱	參考用書	考綱	備註
振動學	Mechanical Vibrations, 5th Edition, S. S. Rao, Prentice-Hall, Inc., 2010	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	Theory of Ground Vehicle, 4th Edition, J. Y. Wang, John Wiley & Sons, Inc., 2008. (Ch.1, 3, 5, 7)	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, 4th Edition, Ferdinand P. Beer, E. Russell Johnston, JR, John T. Dewolf, McGraw-Hill Book Co, 2006.	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

科目名稱	參考用書	考綱	備註
自動控制	Feedback Control of Dynamic Systems (6th Edition), Gene F. Franklin, J. David Powell, Abbas Emami-Naeini	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	電機學，吳之泰著，新科技圖書	直流電路分析、交流電路分析、三相平衡電路分析、電磁效應、變壓器、三相感應馬達、同步電機、直流電機	
電子學	Microelectronic Circuits (6th edition), Sedra/Smith	Diodes, BJTs, FETs, OPAs, Frequency response, Feedback, Filters, Power amplifiers.	

三、動力與能源組

科目名稱	參考用書	考綱	備註
熱力學	Fundamentals of Thermodynamics Seventh Edition 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	Fundamentals of Fluid Mechanics Sixth Edition 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	
內燃機	Engineering Fundamental of the Internal Combustion Engines, 2nd Edition By: Willard W. Pulkrabek	Operating Characteristics Engine Cycles Thermochemistry and Fuel Air Induction and Fuel Induction Fluid Motion Combustion Emissions and Air Pollution Heat Transfer in Engines Friction and Lubrication	