Final QE TOPICS AND REFERENCES
August 2006 QE
EXAM DATE: Thursday, August 17, 2006

The student is responsible for reading the ECE document "Rules and Procedures for the Ph.D. Qualifying Examination."

CORE COURSES

CC-1 ECE 600


CC-2 ECE 602

- Class Notes


  ISBN #0-19-511777-8

CC-3 ECE 604


CC-4 ECE 606


CC-5 ECE 608

- Introduction to Algorithms, Second Edition

CC-6 ECE 610

AUTOMATIC CONTROL

Basic Questions

AC-1 Robotics

- Class handouts from ECE 569

AC-2 Optimization

- Lecture notes from ECE 580

AC-3 DROPPED

Advanced Questions

AC-4 NOT OFFERED

AC-5 Multivariable Control


AC-6 NOT OFFERED

BIOMEDICAL IMAGING AND SENSING

Basic Questions

BE-1 DROPPED

BE-2 DROPPED
BE-3  Engineering and the Nervous System


- Any neuroimaging-modality related text (e.g., *Functional Brain Imaging*, by W. W. Orrison, Jr., J. D. Lewine, J. A. Sanders and M. F. Hartshorne, Mosby-Year Book, (1995)).

- Chapters related to sensory systems in neuroimaging texts (e.g., *Functional MRI*, by C. T. Moonen, P.A. Bandetti (eds.), Springer-Verlag, (1999); *Brain Activation*, by P. E. Roland, Wiley-Liss, (1999)).

- Chapters on sensory systems in engineering-related texts (e.g., *Acoustic Systems in Biology*, by N. H. Fletcher, Chapters 4,6,8,9, and 12, Oxford University Press, (1992)).

- Class notes from ECE 622

BE-5  Medical Imaging

- Principles of Computerized Tomographic Imaging (Classics in Applied Mathematics, 33), Avinash C. Kak, Malcolm Slaney, SIAM, ISBN: 089871494X; (July 1, 2001)

- Any of the following:


A student who has mastered the material in:

- ECE 641 Digital Image Processing II
- ECE 662 Pattern Recognition and Decision Making Processes
- ECE 620 Introduction to Biomedical Imaging Systems

will be adequately prepared.

**Advanced Questions**

BE-4  DROPPED

**COMMUNICATIONS & SIGNAL PROCESSING**

**Basic Questions**

CS-1  Digital Signal Processing Principles, Algorithms, and Applications

CS-2 Communications

CS-3 DROPPED

CS-4 Networking

*The questions will not necessarily be connected to specific courses; however, students who take ECE 538, ECE 544, and ECE 547 will be adequately prepared for the exam.*

**COMPUTER ENGINEERING**

*Basic Questions*

CE-1 DROPPED

CE-2 DROPPED

CE-3 Artificial Intelligence

CE-4 Computer Architecture

CE-5 Software

**ENERGY SOURCES & SYSTEMS**

*Basic Questions*

ES-1 Electromechanical Energy Conversion
ES-2  Power Electronics


**FIELDS & OPTICS**

FO-1  Electrostatics, Magnetostatics and Quasistatics


FO-2  Waves and Time-Varying Fields


FO-3  Waves and Time-Varying Fields


**MICROELECTRONICS & NANOTECHNOLOGY**

(formerly Solid State Devices & Materials (SS))

*Basic Questions*

MN-1  Semiconductor Fundamentals


MN-2  Semiconductor Devices


VLSI & CIRCUIT DESIGN

Basic Questions

VC-1 Integrated Circuit and/or MOS VLSI Layout and Design

- Lecture Notes from ECE 558/559. The contents of lecture notes are also covered in:

VC-2 DROPPED

VC-3 DROPPED

VC-4 Advanced VLSI Design

- Lecture Notes from ECE 695KR