ECES 753: Special Topics in Quantum Computing
Spring 2004

2003 Catalog Data: 20-ECES-753 (also listed as 15-PHYS-623) Special Topics in Quantum Computing: This course is aimed at a study of advanced topics in quantum computing. Because of its cross-disciplinary nature, this class will be taught by several faculty members with the field of specialty for each of the topics below.

Coordinator: M. Cahay, Professor of Electrical and Computer Engineering

Prerequisite: Permission of the instructor(s), recommanded: ECES 622 - Introduction to Quantum Computing.

References: Michael A. Nielsen and Isaac L. Chuang
"Quantum Computation and Quantum Information", Cambridge University Press (2000)
Plus additional classnotes

Topics:

- Brief Review of 622: Introduction to Quantum Computing
- Quantum Fourier Transform and Factorization
- Quantum Error-Correction
- Quantum Information Theory
- Special Topics

Computer Usage: Some programming skills are necessary to answer some of the homework questions. Knowledge of one programming language and one plotting package required.

ABET category content as estimated by faculty member who prepared this course description:

Engineering Science: 75%

Engineering Design: 25%

Prepared By: ECECS Dept (UC): M. Cahay , C. Purdy, G. Purdy, and A. Ralescu, Physics (UC): P. Argyres, P. Esposito, and B. Goodman.

Website Upgrade: http://www.ececs.uc.edu/∼mcahay/qubit.html