2.111J/8.411J/18.435J Quantum Computation

http://web.mit.edu/2.111/www/

Instructors: Seth Lloyd (3-160, 252-1803, slloyd@mit.edu, office hours – M 1-3, Th 2:30). Plus Scott Aaronson, Ike Chuang, Eddie Farhi, Peter Shor.

Secretary: Garry McLinn (1-104, 324-5388, gmclinn@mit.edu)

Lecture: Tuesday, Thursday, 1-2:30, 4-370

Weekly problem sets; 1 Quiz; Final

Syllabus (number of lectures, dates):

Introduction (1) 9/10
Classical logic (1) 9/15
Introduction to quantum mechanics (4) 9/17 9/22 9/24 9/29
Quantum weirdness (1) 10/1
Teleportation and superdense coding (1) 9/30
Quantum algorithms (5) 10/1 10/6 10/8 10/15 10/20
Quiz 10/22
Quantum Walks (2) 10/27 10/29
Adiabatic (2) 10/30 11/3
Electromagnetic resonance (2) 11/5 11/10
Jaynes-Cummings (2) 11/12 11/17
Noise and error correction (3) 11/19 11/24 12/1
Quantum cryptography (1) 12/3 12/8 12/10
Final

S. Lloyd's notes on quantum computing:
http://web.mit.edu/2.111/www/notes09/spring.pdf

Text: *Quantum computation and quantum information*, M. Nielsen and I. Chuang, Cambridge University Press.