Course Outline
Topics in Advanced Accelerator Design I

Meeting Times: Monday, 9:00-11:45
Text: A. W. Chao and M. Tigner, *Handbook of Accelerator Physics and Engineering*
Supplementary Texts: K. Wille, *The Physics of Particle Accelerators*, H. Wiedemann, *Particle Accelerator Physics,* 3rd Edition, Springer, J. D. Jackson, *Classical Electrodynamics*
Grading: Homework Problems 35%; Mid-term Examination 25%; Final Examination 40%

Course Content

Introduction to Accelerators and Short Historical Overview

- Electromagnetism for Accelerators
- Mechanics
- Relativistic Mechanics
- Linear Optics
- Types of Accelerators

Accelerator Engineering Topics

- Magnets
- Electron Sources
- RF/RF Controls
- SRF
- Cryogenics Engineering
- Beam Diagnostics
- Controls

TAAD1 Course Outline

Session	Topic	Instructor
8/27/2011 9:00-10:15	Introduction to Accelerators	Krafft
8/27/2011 10:30-11:45	Electromagnetism	Krafft
9/10/2011 11:30-12:45	Cyclotrons/Betatrons/Medical Accelerators	Satogata
9/10/2011 1:00-2:15	Electromagnetism	Satogata
9/17/2011 9:00-10:15	Mechanics	Krafft
9/17/2011 10:30-11:45	Mechanics	Krafft
9/24/2011 9:00-10:15	RF Fundamental (TE,TM,TEM)	Delayen
9/24/2011 10:30-11:45	Cavity Fundamentals	Delayen
10/01/2011 9:00-10:15	SRF I	Delayen
10/01/2011 10:30-11:45	SRF II	Delayen

10/15/2011 9:00-10:15	SRF III	Delayen
10/15/2011 10:30-11:45	Electron Sources	Grames
10/22/2011 9:00-10:15	Relativistic Mechanics	Krafft
10/22/2011 10:30-11:45	Electron Sources	Grames
10/29/2011 9:00-10:15	Relativistic Mechanics	Krafft
10/29/2011 10:30-11:45	RF/RF Controls	Hovater
11/05/2011 9:00-10:15	Linear Optics	Krafft
11/05/2011 10:30-11:45	Cryogenics Engineering	Ganni
11/12/2011 9:00-10:15	Linear Optics	Krafft
11/12/2011 10:30-11:45	Beam Diagnostics	Evtushenko
11/19/2011 9:00-10:15	Linear Optics	Krafft
11/19/2011 10:30-11:45	Synchrotrons	Satogata
11/26/2011 9:00-10:15	Linear Accelerators	Krafft
11/26/2011 10:30-11:45	Magnets	Brindza
12/03/2011 9:00-10:15	Light Sources	Krafft
12/03/2011 10:30-11:45	Controls	Areti