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# Control Room Accelerator Physics

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# Course Objectives

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Accelerator physics in general, and accelerator control in particular, requires diverse areas of expertise; it is the epitome of multi-disciplinary activity.

- Cover commissioning tasks for accelerators.
- Demonstrate software techniques for building applications using XAL as a vehicle
- Introduce basic material from accelerator physics and control theory to provide a theoretical and operational foundation for the applications.

# Daily Schedule

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- 9:00 am – 2:00 pm: Morning Session (Lectures with breaks)
- 12:00 am – 1:30 pm: Lunch
- 1:30 pm – 5:30 pm: Laboratory (covering principles in lectures)

Daily homework consists of both computer and written assignments

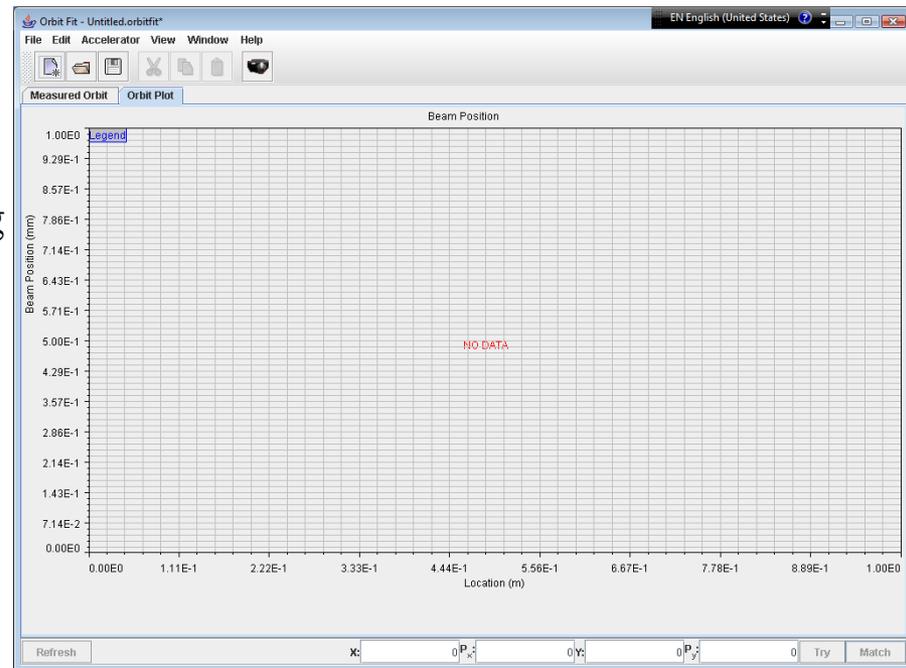
Computer assignment to be done in the computer laboratory in the evenings

- Instructors will be present
- You will work in groups of two individuals.

**Final exam on the morning of Friday, June 27 consisting of a computer part and a written part.**

# Computer Homework Assignments

- Nightly computer homework assignments will consist of building an XAL-based application
  - You will work each night adding additional features
  - An application “stub” will be provided from which to start
  - Each evening will start from a separate stub
  - The final resulting will be a working XAL application for orbit fitting



Completed Application

# Grading

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Grading is based upon performance in the daily assignments and the final exam.

## Breakdown

- 33% - Daily computer assignment
- 33% - Daily written assignment
- 33% - Final exam (both computer and written)

# Schedule

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	<b>Monday June 23</b>	<b>Tuesday June 24</b>	<b>Wednesday June 25</b>	<b>Thursday June 26</b>	<b>Friday June 27</b>
<b>9:00 am to 12:00 pm</b>	<b>Lecture</b> Course Overview Accel. Systems XAL Overview	<b>Lecture</b> Linear Systems Beam Optics Online Model	<b>Lecture</b> Software Engr. App. Frameworks XAL Solver	<b>Lecture</b> Acceleration Commissioning Applications	<b>Review Q&amp;A Final</b>
<b>1:30 pm to 5:00 pm</b>	<b>Lab</b>	<b>Lab</b>	<b>Lab</b>	<b>Lab</b>	
<b>7:00 -</b>	<b>Home Work</b>	<b>Home Work</b>	<b>Home Work</b>	<b>Home Work</b>	