

## PHYS820/NTEC N11: Radiation Shielding Module

### TIMETABLE

#### Monday

10:00	Introduction to the course
10:15	<b>Lecture 1:</b> Radiological Protection Principles
11:00	Break, discussion
11:30	<b>Lecture 2:</b> Introduction to Radiation Sensors
12:15	Lunch
13:30	<b>Lecture 3:</b> An introduction to MCNP & Validation
14:30	<b>Practical 0:</b> Practical introduction to MCNP
17:15	Finish

#### Tuesday

09:15	<b>Practical 1:</b> Comparison of $^3\text{He}$ and $\text{BF}_3$ detectors
10:45	Break, discussion
11:15	<b>Practical 2:</b> Moderator thickness and cadmium shielding
12:15	Lunch
13:30	<b>Lecture 4:</b> Simple Shielding Methods
14:30	<b>Lecture 5:</b> Monte Carlo Simulation
15:30	Break, discussion
16:00	<b>Practical 3:</b> Gamma-ray shielding
17:15	Finish

#### Wednesday

09:15	<b>Lecture 6:</b> Use of Monte Carlo Codes (Albrecht Kyrieleis)
10:15	<b>Case Study 1:</b> Streaming (Albrecht Kyrieleis)
10:45	Break, discussion
11:15	<b>Practical 4:</b> MCNP simulation of detector rig
12:15	Lunch
13:15	<b>Lecture 7a:</b> Use of Deterministic Codes in Shielding (Part 1) (Adrian Chewter)
14:15	<b>Lecture 7b:</b> Use of Deterministic Codes in Shielding (Part 2) (Adrian Chewter)
14:45	<b>Practical 4:</b> MCNP simulation of detector rig
15:45	Break, discussion
16:15	<b>Practical 4:</b> MCNP simulation of detector rig

17:15 Finish

### **Thursday**

09:15 **Lecture 8:** The shielding design process (Andy Cooper/Anton Murfin)

10:15 Break, discussion

10:55: **Practical 4:** MCNP simulation of detector rig

12:15 Lunch

13:15 **Lecture 9:** Shielding Applications (Trevor Lowe)

14:15 **Practical 4:** MCNP simulation of detector rig

15:30 Break, discussion

16:00 **Practical 4:** MCNP simulation of detector rig

17:15 Finish

### **Friday**

09:15 **Practical 5:** Comparison of experiment and simulation

10:30 Break, discussion

11:00 **Practical 5:** Comparison of experiment and simulation

12:15 Lunch

13:30 Written test

14:30 End of Course

*Practicals are labelled for information only, the order of completion may change.*