



Outline & Expectations

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UNENE Nuclear Reactor Safety
Course



Course Objectives

- Basics of nuclear reactor safety, focused on CANDU
- Learn “how” and “why”, less emphasis on “what”
- Apply combination of good engineering and good science
 - Large range of topics in a small time
 - You will leave the course with a fundamental engineering understanding of the technical basis of CANDU safety



You should know by now..

- General engineering or science degree
- Basic pieces of a CANDU
- For *some* projects (your choice): Basic knowledge of a programming language (e.g. FORTRAN)
 - Easy to learn during the course if needed
- Mathematics as covered in undergraduate engineering or science



Required of you...

- In-class exercises & tests
 - No credit for using 'industry' answers
- Evening or weekend homework
- One project over the course
- Attendance at *all* lectures unless ill or out of town on business
 - Participation in the class is essential to pass
- Read the text beforehand



Logistics

- 8 days plus homework, in 4 sessions ~ two weeks apart
 - 05 & 06 January, 19 & 20 January, 09 & 10 February, 23 & 24 February
 - 09:00 - 16:00 on the Saturdays
 - 14:00 - 18:00 on the Sundays
 - Lunch – on your own
- You need to get a mark of 70% (B-) to get credits for the course
 - Discussion, not just lecturing!



Homework & projects

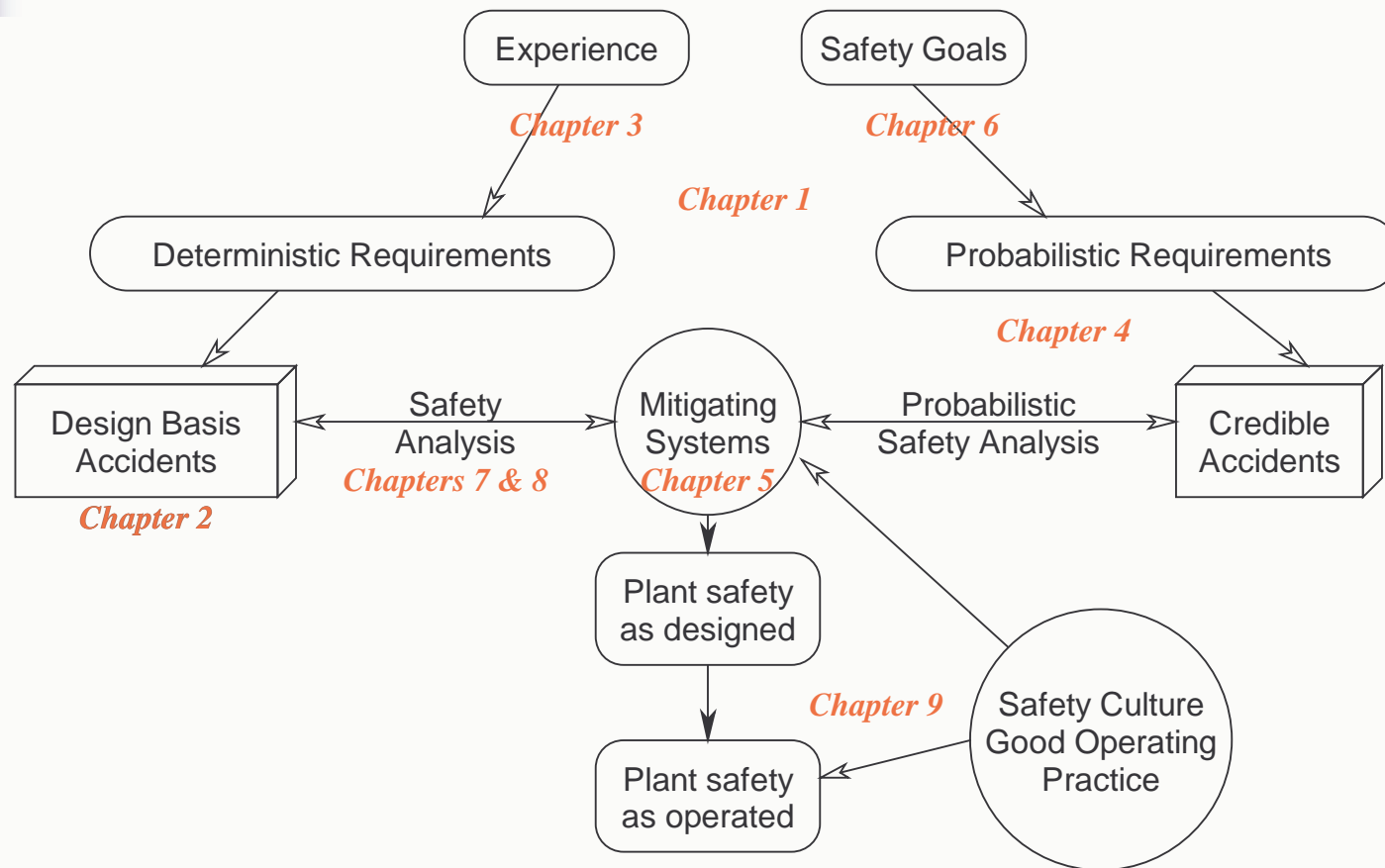
- Project & homework must be electronic format (scanned handwritten pdf's not liked, and not marked if illegible)
 - OK to hand-write math symbols
- Homework due to me (by email) the weekend after it is assigned (Saturday 6pm)
- I will return marked homework at the next class
- In fairness to other class members and to me, late homework will not be marked



Weather

- I will cancel class if weather makes it too dangerous to drive
 - Need your phone contact
- We will make it up on the off-week

Concept Diagram





Course Plan

Expectations & Requirements

Chapter 1

Introduction

Chapter 2

Design Basis Accidents

Chapter 3

Case Studies

Chapter 4

Probability Tools and Techniques

Chapter 5

Safety Systems

Chapter 6

Safety Goals

Chapter 7

Accident Analysis

Chapter 8

Technology of Accident Analysis

Chapter 9

Whither Safety? International Trends

Appendix

Glossary & Acronyms



Modules

January 5-6	
Outline	Scope, logistics, expectations
Chapter 1	Introduction
Chapter 2	Design Basis Accidents
Chapter 3	Part 1 – Reactor Physics
January 19-20	
Chapter 3	Part 2 – Case Studies
	Choose projects
Chapter 4	Probability Tools and Techniques



Modules – cont'd

February 9-10	
Chapter 5	Safety Systems
Chapter 6	Safety Goals
Chapter 7	Accident Analysis
	Progress report on projects
February 23-24	
Chapter 8	Technology of Accident Analysis
Chapter 9	Whither Safety? International Trends
	Final report on projects
	Test



Evaluation (typical)

1st test	1st home-work	2nd Test	2nd home-work	3rd test	Project - Scope	Project - methodology	Project - Model
5	10	5	10	10	5	5	10

Project - Results	Project - Discuss-ion	Project - Report Quality	Project - Present	4th test / exam	4th home-work	TOTALS
5	5	5	5	15	5	100



What's in it for you?

- Understand the safety requirements and philosophy behind your everyday work
 - Make more informed decisions
- Springboard to a career in safety and licensing
- Value added in other areas e.g. marketing
- Recognition by management



Secrets of success

- Come to each lecture, on time
- Hand in *all* homework and projects, on time
- Read ahead
- Ask questions / contribute