Outline & Expectations

Dr. V.G. Snell

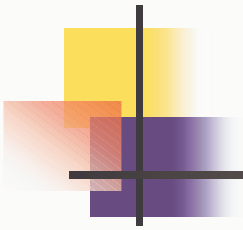
UNENE Nuclear Reactor Safety Course

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 – UNENE

- 8 days plus homework, in 4 sessions ~ two weeks apart
  - 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 - UNENE

- Project & homework must be electronic format (scanned handwritten pdf's **not** liked, and not marked if illegible)
  - OK to hand-write math symbols
- Homework to me (vgssolutions@rogers.com) 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

Cancelled classes - UNENE

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

Logistics – Diploma

- 13 evening sessions
  - 17:00 – 20:00 every Wednesday
  - Break for supper – we'll order in
- You need to get a mark of 70% (B-) to get credits for the course
  - Discussion, not just lecturing!

Homework - Diploma

- Project & homework must be electronic format (scanned handwritten pdf's **not** liked, and not marked if illegible)
  - OK to hand-write math symbols
- Homework to me (vgssolutions@rogers.com) the Tuesday after it is assigned (6pm sharp)
- I will return marked homework at the class the following week
- In fairness to other class members and to me, late homework will not be marked

Cancelled classes - Diploma

- I will cancel class if weather makes it too dangerous to drive or if I have to travel on business
  - Need your phone contact
- We will make it up by extending the term by a week

Academic Integrity

- Some of you are now in industry
  - Sharing / copying / using without attribution encouraged
- University focusses on your *individual* performance
- Any collaborative work must be defined or permitted *beforehand* by your professor
- Honesty also a prerequisite for a professional engineer and a safe nuclear industry

What is Academic Integrity?

- "The University states unequivocally that it demands scholarly integrity from all its members. Academic dishonesty, in whatever form, is ultimately destructive to the values of the University; furthermore, it is unfair and discouraging to those students who pursue their studies honestly."

  Academic Integrity Policy, McMaster University, 2006, Page 2.

Types of Academic Dishonesty

- Plagiarism
- Inappropriate collaboration
- Cheating on a test or exam
- Aiding another student in academic dishonesty
- Stealing, destroying or tampering with another student's work

… Academic Dishonesty - 2

- Preventing another student from completing an academic task
- Misrepresenting academic credentials
- Submitting false information or false medical note to gain a postponement or advantage
- Forging, altering or fabricating any McMaster documents (transcripts, etc.)

… Academic Dishonesty - 3

- Impersonating another student
- Providing a false signature for attendance in a class
- Research misconduct e.g. fabrication or falsification of research data, etc.

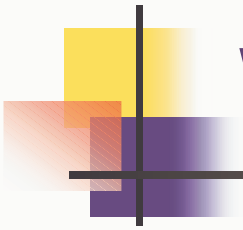
Plagiarism

"(To) submit academic work that has been, entirely or in part, copied from or written by another person without proper acknowledgement, or, for which previous credit has been obtained"

Academic Integrity Policy, McMaster University, 2006, Page 6.

McMaster University Policies

- www.mcmaster.ca/academicintegrity
- http://www.mcmaster.ca/univsec/policy/AcademicIntegrity.pdf



When In Doubt – Ask!

- You need to understand exactly the extent of collaboration, if any, your professor allows.
- He will almost certainly *not* allow any collaboration on a test or an exam
- You need to make sure you fully understand the ground rules, and if they are not clear, ask!

Penalties

- If academic dishonesty is suspected by your professor, a formal process starts
- Review by Department
- Hearing
- If substantiated, you *will* fail the course
- You *may* be expelled from the diploma programme
- You *may* have a notation on your academic record
- Bottom line: Don't do it

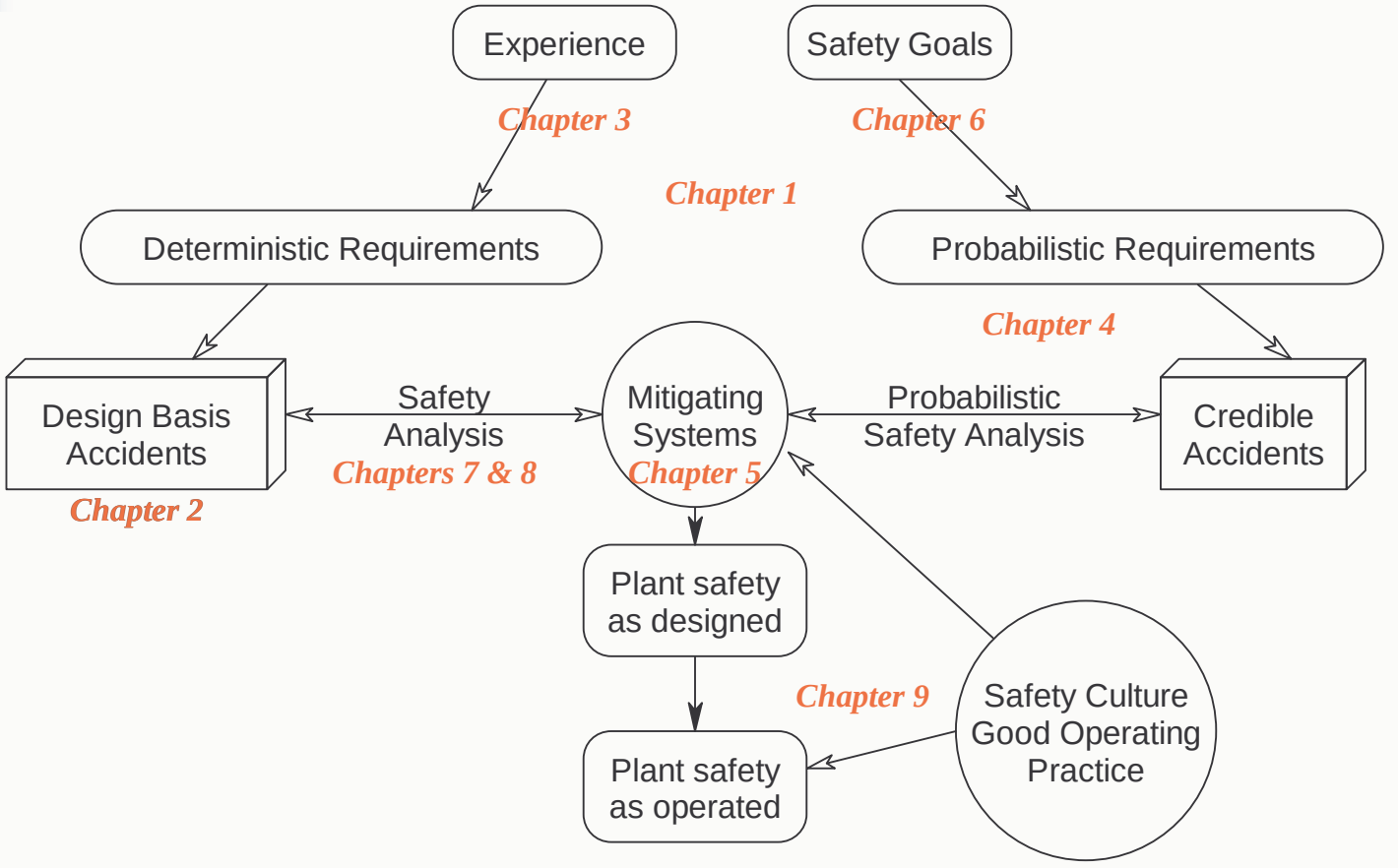
If it goes beyond the Department

- Faculty Adjudicator (Graduate)
- Notification
- Formal hearing
- Burden of proof is a “civil” standard
  - “preponderance of the evidence”, NOT “beyond a reasonable doubt”
- Adjudicator issues finding (and determines penalty if the student is found guilty)

Bottom Line

- You are responsible for your actions
- Academic Integrity is not optional
- You have an obligation to ask for clarifications when you are unsure
- The penalties for violations are severe

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 - UNENE

Weekend 1	
Outline	Scope, logistics, expectations
Chapter 1	Introduction
Chapter 2	Design Basis Accidents
Chapter 3	Part 1 – Reactor Physics
Weekend 2	
Chapter 3	Part 2 – Case Studies
	Choose projects
Chapter 4	Probability Tools and Techniques

Modules – UNENE - cont'd

Weekend 3	
Chapter 5	Safety Systems
Chapter 6	Safety Goals
Chapter 7	Accident Analysis
	Progress report on projects
Weekend 4	
Chapter 8	Technology of Accident Analysis
Chapter 9	Whither Safety? International Trends
	Final report on projects
	Test

Modules – Diploma

Outline	1	Scope, logistics, expectations
Chapter 1	1	Introduction
Chapter 2	2	Design Basis Accidents, discuss projects
Chapter 3	3	Part 1 – Reactor Physics, choose projects
Chapter 3	3,4	Part 2 – Case Studies
Chapter 4	4,5	Probability Tools and Techniques

Modules – Diploma - cont'd

Chapter 5	6, 7	Safety Systems
Chapter 6	8	Safety Goals, verbal progress on projects
Chapter 7	9, 10	Accident Analysis, progress report on projects
Chapter 8	11,12	Technology of Accident Analysis
Chapter 9	12	Whither Safety? International Trends
	12	Exam
	13	Final report on projects

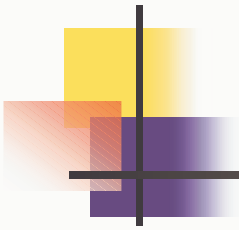
Evaluation (typical)

1st test	1st home-work	2nd Test	2nd home-work	3rd test	Project - Scope	Project - method-ology	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