

# UN 0701 – Engineering Risk and Reliability

## Summer 2007 Preliminary Course Schedule

	<b>Module 1</b>	<b>Module 2</b>	<b>Module 3</b>	<b>Module 4</b>	<b>Module 5</b>	<b>Module 6</b>
	<b>Fundamentals of Probability</b>	<b>Statistical Analysis</b>	<b>Functions of Random Variables</b>	<b>Reliability Analysis</b>	<b>System Reliability Analysis</b>	<b>Risk and Life Cycle Management</b>
<b>Time</b>	<b>May 12, 2007</b> (Saturday)	<b>May 13, 2007</b> (Sunday)	<b>May 26, 2007</b> (Saturday)	<b>May 27, 2007</b> (Sunday)	<b>June 16, 2007</b> (Saturday)	<b>June 17, 2007</b> (Sunday)
9:00 – 10:00 am	Course Overview and Introduction	<b>5. Distribution Selection</b>	Discuss Homework <b>9. Functions of Random Variables</b>	<b>13. Basic Reliability Concepts</b>	Discuss Homework <b>17. PSA and System Reliability Analysis</b>	<b>21. Risk Analysis and Management</b>
10:00 – 10:15 am	<i>Coffee Break</i>	<i>Coffee Break</i>	<i>Coffee Break</i>	<i>Coffee Break</i>	<i>Coffee Break</i>	<i>Coffee Break</i>
10:15 – 11:15 am	<b>1. Reliability and Basic Probability Concepts</b>	<b>6. Parameter Estimation and Goodness of Fit</b>	<b>10. Regression Analysis</b>	<b>14. Lifetime Distribution Modelling</b>	<b>18. Fault Tree Analysis</b>	<b>22. Life Cycle Management (LCM)</b>
11:15 – 12:00 am	<b>2. Uncertainty Modelling and Frequency Analysis</b>	In-Class Exercise	In-Class Exercise	In-Class Exercise	In-Class Exercise	In-Class Exercise
12:00 – 1:00 pm	<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>
1:00 – 2:00 pm	<b>3. Probability Distributions</b>	<b>7. Sampling Uncertainty</b>	<b>11. Structural Reliability Analysis and Calibration</b>	<b>15. Time Dependent Maintenance and Reliability</b>	<b>19. Fault Tree Evaluation</b>	<b>23. Case Study 1</b>
2:00 – 3:00 pm	<b>4. Random Sampling and Simulation</b>	<b>8. Hypothesis Testing</b>	<b>12. Reliability Analysis Methods</b>	<b>16. Bayesian Analysis</b>	<b>20. Event Tree Analysis</b>	<b>24. Case Study 2</b>
3:00 – 3:15 pm	<i>Coffee Break</i>	<i>Coffee Break</i>	<i>Coffee Break</i>	<i>Coffee Break</i>	<i>Coffee Break</i>	<i>Coffee Break</i>
3:15 – 4:00 pm	In-Class Exercise	In-Class Exercise	In-Class Exercise	In-Class Exercise	In-Class Exercise	Course Summary
4:00 – 5:00 pm	Review	Review and Assign Homework	Review	Review and Assign Homework	Review	Assign Take-home Exam

**Marking Scheme:** Assignments 60%  
Take-home Exam 40%