

**SIC PROGRAMME - Fracture, Fatigue, Creep & Corrosion - July 2023**

Monday	Tuesday	Wednesday	Thursday	Friday
<p><b>9:00</b> Introduction to the course. (NL/RAA/RA)</p>	<p><b>9:00</b> Answers to corrosion calculations.</p>	<p><b>9:00</b> Fundamentals of Fatigue and Fatigue Damage Tolerance. (Problem Sheet 6) (NL)</p>	<p><b>9:00</b> FEA Problem and Discussion of Problems 1-6. (NL)</p>	<p><b>9:00</b> Pitting corrosion fatigue Case Study. (RA &amp; NL)</p>
<p><b>9:20</b> Introduction to failure mechanisms. (NL)</p>	<p><b>9:20</b> Pipeline corrosion case study. (RA)</p>			
<p><b>9:50</b> Fundamentals of Fracture mechanisms. (NL)</p>	<p><b>9:50</b> Pitting &amp; Pit-induced fatigue modelling. (RA)</p>			
<b>10:40 Coffee break</b>				
<p><b>11:00</b> Linear Elastic Fracture Mechanics (Problem Sheets 1 &amp; 2) (NL)</p>	<p><b>11:00</b> Creep-Fatigue initiation assessment. (RAA) Creep Fracture Mechanics. (RAA)</p>	<p><b>11:00</b> Case Studies on High Temperature Fracture. (RAA)</p>	<p><b>11:00</b> Probabilistic Modelling in Structural Integrity Assessments. (Problem Sheet 7) &amp; Introduction to Digital Twins. (NL)</p>	<p><b>11:00</b> Future Trends in High Temperature Assessment. (RAA)</p>
<b>11:50 Coffee break</b>				
<p><b>12:00</b> Material Creep Deformation and Failure Models. (RAA)</p>	<p><b>12:00</b> Fracture Toughness, small-scale yielding. (Problem sheet 5) (NL)</p>	<p><b>12:00</b> Worked Examples on Creep Crack Growth. (RAA)</p>	<p><b>12:00</b> RPV Case Study. (NL &amp; RAA)</p>	<p><b>12:00</b> End of Course. Questions/ Discussions.</p>
<b>13:00 Lunch</b>				
<p><b>14:00</b> Creep Stress Analysis of Uncracked Bodies under Steady and Cyclic Loading. (RAA)</p>	<p><b>14:10</b> Models for Creep Crack Initiation and Growth. (RAA)</p>	<p><b>14:00</b> Corrosion Fatigue - Introduction. (RA)</p>	<p><b>14:00</b> Creep-Fatigue Crack Growth Assessment. (RAA) Short Cracks in Creep-Fatigue. (RAA) Creep - Case Studies. (RAA)</p>	<p><b>14:00</b> End of Day 5.</p>
<p><b>14:50</b> J-Integral, HRR Field and Failure Assessment Diagram. (Problem Sheets 2 &amp; 4) (NL)</p>	<p><b>14:50</b> Residual Stress Effects on Creep Fracture. (RAA) SCC introduction / Mechanisms &amp; Methods of Assessment. (RA)</p>	<p><b>14:50</b> Corrosion Fatigue - Modelling / Mechanisms &amp; Worked example. (RA)</p>		
<b>15:20 Coffee break</b>				
<p><b>15:40</b> Corrosion - Introduction &amp; Calculations (RA)</p>	<p><b>15:40</b> Stress Corrosion Cracking: Introduction / Mechanisms, Methods and worked example. (RA) Hydrogen Embrittlement. (RA)</p>	<p><b>15:40</b> Corrosion Risk-based Inspection / Corrosion case study examples. (RA) / Design Aspects.</p>	<p><b>15:40</b> Advanced Computational Methods for Creep (RAA)</p>	
<b>17:00 End of day</b>				
			<p><b>19:00</b> Course Dinner</p>	<p><b>RAA:</b> Prof. Robert Ainsworth <b>RA:</b> Prof. Robert Akid <b>NL:</b> Dr. Nicolás Larrosa</p>