SIC PROGRAMME - Fracture, Fatigue, Creep & Corrosion - December 2021

	Monday		Tuesday		Wednesday		Thursday		Friday
09:00	Introduction to the course (NL/RAA/RA)	09:00	Answers to corrosion calculations Pipeline corrosion case study (RA)	09:00	Fundamentals of fatigue and fatigue damage tolerance - (Problem Sheet 6) (NL)	09:00	FEA problem and discussion of Problems 1-6 (NL)	09:00	Corrosion Risk-based Inspection (RA) Corrosion case study examples (RA)
09:20	Introduction to failure mechanisms (NL)	09:20		09:40		09:40		09:40	
09:50	Fundamentals of Fracture mechanisms (NL)	09:50	Pitting & API assessment (RA)						
10:40	*Coffee break*	10:40	*Coffee break*	10:40	*Coffee break*	10:40	*Coffee break*	10:30	*Coffee break*
11:00	Linear Elastic Fracture Mechanics - Problem Sheet 1 & 2 (NL)	11:00	Creep-Fatigue Initiation Assessment (RAA) Creep Fracture Mechanics (RAA)	11:10	Case Studies on High Temperature Fracture (RAA)	11:10	Probabilistic modelling in structural integrity assessments (Problem Sheet 7) & Introduction to digital twins (NL)	10:50	Future Trends in High temperature Assessment (RAA)
11:50	*Coffee break*	11:50	*Coffee break*	11:50	*Coffee break*	11:50	*Coffee break*	11:50	*Coffee break*
12:00	Material Creep Deformation and Failure Models (RAA)	12:00	Fracture toughness, small-scale yielding (Problem Sheet 5) (NL)	12:00	Worked Examples on Creep Crack Growth (RAA)	12:00	Case Studies on High Temperature Fracture (RAA)	12:00	*End of Course- Question/ Discussions*
13:00	*Lunch*	13:00	*Lunch*	13:00	*Lunch*	13:00	*Lunch*	13:00	*Lunch*
14:00	Creep Stress Analysis of Uncracked Bodies under Steady and Cyclic Loading (RAA)	14:10	Models for Creep Crack Initiation and Growth (RAA) Residual Stress Effects on Creep Fracture (RAA)	14:00	Corrosion Fatigue - Introduction (RA)	14:00	Creep-Fatigue Crack Growth Assessment (RAA) Short Cracks in Creep-Fatigue (RAA) Creep- Case Studies (RAA)	14:00	*End of day 5*
14:30	J-integral, HRR field and failure assessment diagram (Problem Sheet 2 &4) (NL)	14:20	SCC Introduction/ Mechanisms & Methods of Assessment (RA)	14:50	CF Modelling/Mechanisms & Worked example (RA)	15:00			
15:20	*Coffee break*	15:20	*Coffee break*	15:20	*Coffee break*	15:20	*Coffee break*	15:20	
15:40	Corrosion - Introduction & calculations (RA)	15:40	SCC worked example (RA) Hydrogen Embrittlement (RA)	15:40	Visit to Clifton Suspension Bridge	15:40 16:30	Advanced Computational Methods for Creep (RAA)	16:00	RAA: Prof. Robert Ainsworth RA: Prof. Robert Akid NL: Dr Nicolas Larrosa
17:00	*End of day 1*	17:00	*End of day 2*	17:00	*End of day 3*	17:00	*End of day 4*	17:00	
						19:00	*Course Dinner*		

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The Structural Integrity Course