

CT5126	Fatigue	3
Instructor	Arie Romeijn	
Instructor	Henk Kolstein	
Instructor	Joop den Uijl	
Instructor	Jan-Willem van de Kuilen	
Education Period	1st Education Period	
Exam Period	1st Exam Period	
Course Language	English	
Course Contents	<p>The student will learn how to design fatigue loaded steel / aluminium / concrete / timber structures.</p> <p>Two-thirds of the course is spent on lectures, while the remaining is dedicated to exercises. The main topics are:</p> <p>fatigue actions: basic principles, determination of stresses and stress intensity factors, stress history</p> <p>fatigue resistance: basic principles, classified structural details, fatigue strength modifications, resistance against crack propagation, resistance of joints with weld imperfections</p> <p>fatigue assessment: general principles, S-N curves, crack propagation calculation, service testing</p> <p>parameters influencing the fatigue strength of steel / aluminium / concrete / timber connections/structures</p> <p>safety considerations</p> <p>synthetic fatigue curves</p>	
Study Goals	<p>Exercise</p> <p>Questions for all four types of materials considered</p> <p>The aim of this course is to provide knowledge for the design and analysis of steel structures, aluminium structures, concrete structures and timber structures.</p> <p>As a result, the student should be able to:</p> <p>understand the phenomenon fatigue</p> <p>design a structure against the limit state due to fatigue damages</p> <p>work with relevant (Euro)codes</p> <p>apply fracture mechanics</p>	
Education Method	Lectures, exercise	
Course Relations	<p>CT5126 uses CT3051</p> <p>CT5126 uses CT3121</p> <p>CT5126 uses CT4110</p> <p>CT5126 uses CT4121</p> <p>CT5126 uses CT4160</p>	
Literature and Study Materials	<p>syllabus:</p> <p>Fatigue steel / aluminium / concrete / timber</p> <p>obligatory lecturenote(s)/textbook(s):</p>	
Assessment	<p>Hand outs</p> <p>Oral exam</p> <p>Assignments</p>	