Course: Reinforced Concrete Structures
A.y.: 2020-21
Lecturers: Boyan Mihaylov and Gabriele Guerrini
Date: 21/10/2020 – 13/11/2020
Classroom: (to be assigned)

Course schedule

Week	Date	Lecture hours From____ To____	Tutorial hours From____ To_____	Subject	Tot h
1	19/10	-	-	-	-
	20/10	-	-	-	-
	21/10	9:00-12:00	13:30-15:30	Ch 1 Strut-and-tie (STM) design of slender beams	5
	22/10	9:00-12:00	13:30-15:30	Ch 2 Torsion	5
	23/10	-	-	-	-
2	26/10	9:00-12:00	13:30-15:30	Ch 3 Deep beams	5
	27/10	9:00-12:00	13:30-15:30	Ch 4 Joints and connections	5
	28/10	-	-	-	-
	29/10	9:00-12:00	13:30-15:30	Ch 4 Joints and connections	5
	30/10	9:00-12:00	13:30-15:30	Ch 5 Wall structures	5
3	02/11	9:00-12:00	13:30-15:30	Ch 5 Wall structures	5
	03/11	9:00-12:00	13:30-15:30	Ch 6 Foundations	5
	04/11	-	-	-	-
	05/11	9:00-12:00	13:30-15:30	Ch 7 Axial behaviour of prestressed members	5
	06/11	9:00-12:00	13:30-15:30	Ch 8 Flexural behaviour of prestressed members	5
4	9/11	9:00-12:00	13:30-15:30	Ch 9 Design of pre-tensioned structures	5
	10/11	9:00-12:00	13:30-15:30	Ch 10 Design of post-tensioned structures	5
	11/11	9:00-12:00	13:30-15:30	Ch 11 Design of slabs	5
	12/11	-	-	-	-
	13/11	9:00-12:00	13:30-15:30	Ch 11 Design of slabs	5

Exam: November 18 (to be confirmed)

Note: The separation of the classes into lectures and tutorials is not strict and the two will be alternated depending on the needs of the class.

Brief Contents Description and Course Syllabus: The main objective of the course is to develop knowledge and skills necessary for the design of a variety of important reinforced and prestressed concrete members and structures as listed in the course content. The focus is placed on using fundamental principles (flow of forces, compatibility of deformations, stress-strain relationships, equilibrium) to solve different design problems from 1D (beams and girders) to 3D members and structures (single foundations, pile caps and wall

systems). In this manner, the course develops a fundamental understanding of structural design which the students can apply to any other type of concrete structures not covered in the syllabus.

To maximize the learning outcome, the course will use a variety of different learning methods. The classes will include a combination of slide presentations, “blackboard” lectures, solved demonstration problems, individual and group work of the students for solving challenging problems, video materials, reading and critically analyzing materials in the classroom. The students will participate actively by using first principles to solve analysis and design problems which are aimed at providing an important insight into the behaviour of concrete structures. They will be guided towards the final solution by solving intermediate problems with increasing complexity.

The evaluation will be based on homework assignments and a written final exam. The exam will consist of two parts: exercises (open book) and theory (closed book) if the COVID-19 situation permits a face-to-face exam. If necessary, the exam will be adapted according to situation and restrictions.