

Università di Padova, 14 dicembre 2018, aula L, h. 14:30-18:30

Laurea Magistrale in Ingegneria Civile
Corso di PROGETTO DI STRUTTURE

Avviso di Seminario

THE TENSILE STRUCTURES: BASIS AND TECHNOLOGY FOR THE DESIGN OF LIGHT WEIGHT STRUCTURES

Lecturer: Eng. Marco Grigoletto – Maffeis Engineering S.p.A.



Tensile and light-weight structures are a typology of special structures with great aesthetical appearance which allow to extend the frontier of the design to very large spans with extremely slender elements. Their design requires a deep knowledge of the non-linear behavior, material characteristics and manufacturing technology.

Starting from a description of different type of materials commonly used for tensile structure, like PVC, PTFE, ETFE and cables, the lecture will go through the principles at the base of the design of tensile structures, from form finding methods to pre-tension concept, from the load combinations to an overview of the different code requirements regarding the verifications of the different materials.

The second part of the lesson will describe the most important technological aspects related the construction design of a tensile structure, like patterning process, detailing and connections: all aspects which affect the design of this type of structures and which must be carefully taken into account by the designer.

Some key studies of large span tensile structure roofs like the Khalifa international stadium for the Qatar world Football Cup 2022 will be shown at the end of the lesson, showing the different design phases, from concept, detail design and installation methodology.

Lecturer: Eng. MARCO GRIGOLETTO – MAFFEIS Engineering S.p.A.

Marco has 12 years of experience as project engineer and engineering supervisor which has caused him develop high competences in structural design of complex structures, in particular tensile/cable/steel structures like stadia, retractable roofs and moving mechanical structures.

Since 2012, Marco has been leading the structural department in Maffeis. He has been involved in the critical design phases of all larger projects, developing innovative structural solutions with a high level of coordination, as well as design of erection methodologies.