TECHNIK
HOCHSCHULE MAINZ
UNIVERSITY OF
APPLIED SCIENCES

Course title: Steel Construction

Identification number	**ECTS credits**	**Duration of the module**	**Intended study semester**	**Frequency of the course**
	5	One Semester	4. Semester	Each Semester

Workload (total) (h)	**Contact time (h)**	**Self-study (h)**
150	60	90

Language	**Planned group size**	**Compulsory or elective**
English	20 Students	Compulsory Module

Module coordinator	**Course(s) (with focus/module group if applicable)**
Prof. Dr. Heiko Merle	Steel Construction

1. Qualification goals/competences/learning outcomes

After completing the module, students will be able to:

- develop, evaluate, select and calculate regular steel structures.
- use the eurocode methods and have the required background and knowledge base in steel construction.
- identify and justify the advantages and disadvantages of different design solutions.

2. Contents

- Steel construction in history
- Material properties of steel: material constants, fabrication and constitutive law
- Elastic and plastic material behavior
- Basics of the second order theory and the theory of stability of elastic and rigid beams for different support conditions
- Basics of the torsional buckling of beams
- Code calculation of beams by using first and second order theory beyond the ultimate and serviceability limit states
- Basics auf bolts and weldings
- Capacity of flexible bolted and welded connections
- Construction concepts of steelwork connections
- Steel construction bracings and its structural design

3. Teaching methods

Lecture with integrated class exercise

4. Participation requirements

The modules Technical Mechanics 1 and 2 and Building Statics 1 should already have been taken.

5.	**Regulations on attendance** /
6.	**Examination type and scope** Written Final Exam (120 Minutes) **Course test as a prerequisite for participation in the exam** /
7.	**Requirements for the awarding of credit points (ECTS)** Passed exam Steel Construction
8.	**Applicability of the module (in other degree programmes)** Bachelor's degree programme International Civil Engineering
9.	**Importance of the grade for the final grade** 5/194
10.	**Literature references** • Lecture notes, Heiko Merle, updated version • Stahlbau-Praxis nach Eurocode 3: Band 1 und Band 2, Gerd Wagenknecht, Bauwerk BBB Beuth, current edition • Stahlbau kompakt, Rolf Kindmann et al., Stahleisen-Verlag, current edition • Schneider - Bautabellen für Ingenieure, Bundesanzeiger Verlag, current edition
11.	**Other information** /
12.	**Last edited** 13.12.24