

General Information:

Name of Course:

BRIDGE CONSTRUCTION

Course Code: PMTSTNB144CA
Semester: 2nd
Number of Credits: 3
Allotment of Hours per Week: 2 lectures, 2 practice
Evaluation: Signature (with grade)
Prerequisites: Reinforced Concrete Structures I., Steel Structures I.

Instructors: **Dr. Zoltan ORBAN, PhD (lecturer)**
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Introduction, General Course Description:

This course provides an introductory overview on the history, type, design and construction of bridges.

Learning Objectives:

Students will gain from this course:

- Overview on the type and structure of highway and railway bridges
- Comprehensive knowledge on the most widely used bridge construction techniques, and design methodologies for bridges
- Introduction to real case studies

Methodology:

- **Lectures:** will give an introduction to the history, type, design methodology and construction techniques of bridges.
- **Practical class and lab practice:** Students will be assigned tasks to complete. These tasks may expand on the experimental work and may have “research components” where students need to gather information required to complete a task and present its conclusions.
- **Exams:** Accumulated knowledge is tested in two exams: a midterm and a final exam. Both feature multiple-choice, true-false or short essay questions.

Schedule:

Week	Lecture	Practical class
Week 1	Course description. Orientation.	No class.
Week 2	History of bridge construction.	Principles of bridge design. Introduction of the assignments.
Week 3	Basic bridge types. Elements of bridges.	1 st assignment: Design of steel girder bridge I.
Week 4	Conceptual bridge design. Actions on bridges.	1 st assignment: Design of steel girder bridge II.
Week 5	Bridge decks. Plate girder and beam bridges. Truss bridges. Box girder bridges.	1 st assignment: Design of steel girder bridge III.

Week 6	Consultancy	Consultancy
Week 7	Arch bridges. Cable stayed bridges. Suspension bridges.	Bridge design examples. Consultation
Week 8	Bridge Equipment. Splices and other connections in bridges.	Submission of 1st assignment.
Week 9	Consultancy	Consultancy
Week 10	Midterm exam	2 nd assignment: Design of RC bridge I.
Week 11	Prestressed concrete bridges.	1 st assignment: Design of RC bridge II.
Week 12	Bridge construction techniques I.	1 st assignment: Design of RC bridge III.
Week 13	Bridge construction techniques II.	Bridge design examples. Consultation.
Week 14	Final exam	Submission of 1st assignment. Consultation.
Week 15	Second exams (only if required). Student's presentations.	Submission of 1st assignment.

Attendance:

Attending is required all classes, and will impact the grade (max. 10%). Unexcused absences will adversely affect the grade, and in case of absence from more than 30% of the total number of lesson will be grounds for failing the class. To be in class at the beginning time and stay until the scheduled end of the lesson is required, tardiness of more than 20 minutes will be counted as an absence. In the case of an illness or family emergency, the student must present a valid excuse, such as a doctor's note.

Grading:

- 10% - Attendance
- 40% - Assignments
- 25% - Midterm Exam
- 25% - Final Exam

Grade:	5	4	3	2	1
Evaluation in percents:	89%-100%	77%-88%	66%-76%	55%-65%	0-54%

Students with Special Needs:

Students with a disability and needs to request special accommodations, please, notify the Deans Office. Proper documentation of disability will be required. All attempts to provide an equal learning environment for all will be made.

Readings and Reference Materials:

Demetrios E. Tonnias: Bridge Engineering, 1994