

Academic Year: 2023-2024	Semester: Fall	Starting Date: 15-10-2023
Course Name	Advanced Prestressed Concrete Bridges	
Module Language	English	
Instructor	Prof. Dr. Omar Qarani	
Teaching Assistance(s)	None	
College/University	College of Engineering – Salahaddin University-Erbil	
Department	Civil	
Semester Duration	15 weeks	
Course Overview	Prestressed concrete Bridges shall be designed for specified limit states to achieve the objectives of constructability, safety and serviceability and also taking into account the economy and aesthetics. Design of reinforced and prestressed concrete bridges is based on the AASHTO specifications (American Association of State Highway and Transportation Officials).	
Course Objectives	Main objectives of this course to learn students the Design of prestressed concrete bridge girders, which is consists of several steps, starting from the selection of the bridge form, loading calculations, spacing between girders, losses of prestressed and at the end design of elastomeric pads under the girders.	
Course Contents	<p>Week Lecture</p> <p>1st Introduction</p> <p>2nd Prestressed concrete</p> <p>3rd Design of prestressed concrete members</p> <p>4th Losses of prestressed concrete members</p> <p>5th Loading of bridges according to AASHTO</p> <p>6th Design of R.C. bridges according to AASHTO</p> <p>7th Design of prestressed girder bridge, Single span</p> <p>8th Design of prestressed girder bridge, two or more spans</p> <p>9th Mid-term exam and open discussion</p> <p>10th Design of post tension box girder bridge, Single span</p> <p>11th Design of post tension box girder bridge, Tow spans</p> <p>12th Design of post tension box girder bridge, three continues spans</p> <p>13th Design of Elastomeric pad</p> <p>14th Seminar or article review Presentation</p> <p>15th Final Exam</p>	

Textbooks and References	<ol style="list-style-type: none"> 1. ACI 318M-19” Building code requirements for structural concrete” Farmington Hills, 2019. 2. PCI "Prestressed Concrete Institute" 3. AASHTO Specifications, “Standard Specifications for Highway Bridges ”017 4. W.F.Chen “Hand book of Structural Engineering” New York, 2005. 5. Other related to the Topics and published in 21st century.
Teaching Style	3 hrs. in Class
Requirements for credit points	<p>For the award of credit points, it is necessary to pass the module exam. It contains:</p> <p>An examination during the academic semester, Quizzes, Assignments, and Final examination.</p> <p>Student's attendance is required in all classes.</p>
Credit ECTS	6
Grade Distribution	<p>The following grade system is used for the evaluation of the module exam: The module exam is based on the summation of two categories of evaluations: First: (50%) of the mark is based on the academic semester effort which includes</p> <ul style="list-style-type: none"> - Midterm Exam = 20%. - Quizzes = 5% - Seminar = 10% - Article review = 15% <p>Second: (50%) of the mark is based on the final examination that is comprehensive for the whole of the study materials reviewed during the academic semester.</p>
Workload	Workload 10hrs/w (150hrs/s): Contact face-to-face 3hrs/w (45hrs/s) and Non-Contact Self learning 7hrs/w (105hrs/s)