# PREFABRICATED STRUCTURES

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| 1 | Course Title: | PREFABRICATED STRUCTURES |
| 2 | Course Code: | INS6036 |
| 3 | Type of Course: | Optional |
| 4 | Level of Course: | Third Cycle |
| 5 | Year of Study: | 1 |
| 6 | Semester: | 2 |
| 7 | ECTS Credits Allocated: | 6.00 |
| 8 | Theoretical (hour/week): | 3.00 |
| 9 | Practice (hour/week): | 0.00 |
| 10 | Laboratory (hour/week): | 0 |
| 11 | Prerequisites: | |
| 12 | Language: | Turkish |
| 13 | Mode of Delivery: | Face to face |
| 14 | Course Coordinator: | Dr. Ögr. Üyesi Mehmet Ömer TİMURAĞAOĞLU |
| 15 | Course Lecturers: | Mehmet Ömer Timurağaoğlu |
| 16 | Contact information of the Course Coordinator: | omertao@uludag.edu.tr |
| 17 | Website: | |
| 18 | Objective of the Course: | Introduction of prefabricated structures,<br>Understanding the design of prefabricated structures,<br>Understanding the structural analysis of prefabricated industrial structures,<br>Understanding the damages observed in prefabricated structures, repair and reinforcement techniques |
| 19 | Contribution of the Course to Professional Development: | To have detailed information about the production stages of reinforced concrete prefabricated building elements, their connection details and controls, and the design principles of a prefabricated building. |
| 20 | Learning Outcomes: | |
| | 1 | Understanding the advantages of prefabricated structures, |
| | 2 | Understanding the calculation and design of prefabricated structures |
| | 3 | Understanding the design of prefabricated element connections |
| | 4 | Understanding the repair and strengthening methods in existing prefabricated structures |
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| 21 | Course Content: | |

**Course Content:**

| Week | Theoretical | Practice |
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| 1 | Introduction, history and advantages and disadvantages of prefabricated construction | |

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| **2** | Definitions, materials and loads in prefabricated structures | |
| **3** | Definitions, materials and loads in prefabricated structures | |
| **4** | Non-bearing prefabricated elements | |
| **5** | Design principles of prefabricated elements | |
| **6** | Types and formation of connections, bar element connections | |
| **7** | Experiments on connection areas | |
| **8** | Diaphragm effect, analysis of prefabricated floor systems | |
| **9** | Design principles of prefabricated elements, systems and connections | |
| **10** | Design of prefabricated industrial and residential structures | |
| **11** | Connection types of prefabricated structures in Turkey building earthquake regulation 2018 | |
| **12** | Damages observed in prefabricated structures, repair and reinforcement. | |
| **13** | Manufacturing, control and tests, assembly and tolerances in prefabricated construction | |
| **14** | Application examples and general evaluation in prefabricated structures | |

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| **22** | Textbooks, References and/or Other | 1. Elliot, K.S., Multi-storey precast concrete framed<br>3. Design and typical details for precast prestressed concrete. PCI, 1988.<br>afında binaların tasarımı için esaslar, Afet ve Acil Durum Yönetimi Başkanlığı, Ankara, Türkiye 2018. |
| **23** | Assesment | |

| Activites | Number | Duration (hour) | Total Work Load (hour) |
|---|---|---|---|
| Theoretical | 14 | 3.00 | 42.00 |
| Practicals/Labs | 0 | 0.00 | 0.00 |
| Self study and preperation | 14 | 4.00 | 56.00 |
| Homeworks | 0 | 0.00 | 0.00 |
| Projects | 0 | 0.00 | 0.00 |
| Field Studies | 0 | 0.00 | 0.00 |
| Midterm exams | 1 | 30.00 | 30.00 |
| Midterm Exam | 1 | 40.00 | |
| Others | 0 | 0.00 | 0.00 |
| Final Exams | 1 | 52.00 | 52.00 |
| Home work-project | 0 | 0.00 | |
| Total Work Load | | | 180.00 |
| Total work load/ 30 hr | | | 6.00 |
| Total | 2 | 100.00 | |
| ECTS Credit of the Course | | | 6.00 |

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| Success Grade | |
| Contribution of Final Exam to Success Grade | 60.00 |
| Total | 100.00 |
| Measurement and Evaluation Techniques Used in the Course | Exam |

**24 ECTS / WORK LOAD TABLE**

**25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS**

| | PQ1 | PQ2 | PQ3 | PQ4 | PQ5 | PQ6 | PQ7 | PQ8 | PQ9 | PQ10 | PQ11 | PQ12 | PQ13 | PQ14 | PQ15 | PQ16 |
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| **ÖK1** | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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| **ÖK2** | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK3** | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK4** | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**LO: Learning Objectives PQ: Program Qualifications**

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| **Contribution Level:** | **1 very low** | **2 low** | **3 Medium** | **4 High** | **5 Very High** |