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| **Identification** | **Subject** | Architectural Structures (3 Credits) | | |
| **Department** | Civil Engineering | | |
| **Program** | Undergraduate | | |
| **Term** | Fall 2018 | | |
| **Instructor** | Ziaaddin Zamanzadeh | | |
| **E-mail:** | zzamanzadeh@khazar.org | | |
| **Phone:** |  | | |
| **Classroom/hours** |  | | |
|  | **Office hours** |  | | |
| **Prerequisites** | Strength of materials – Structural Analysis | | | |
| **Language** | English | | | |
| **Compulsory/Elective** | **Elective** | | | |
| **Description** | Introduction to the physical principles that govern classical statics and strengths of materials through the design of timber, steel or concrete components of architectural structures; computer applications | | | |
| **Required textbooks and course materials** | *“Mechanics of Materials” by Ferdinand P. Beer, E. Russell Johnston, Jr., John T. DeWolf, David F. Mazurek, Sixth Edition published by McGraw-Hill (2011)*  *“STRUCTURE AS ARCHITECTURE” by Andrew W. Charleson, Elsevier/Architectural press, (2005)* | | | |
| **Course website** |  | | | |
| **Course outline** | Stresses and strain in solids, uniaxial loading, linear elasticity, material behavior, aesthetics, architecture fundamentals. | | | |
| **Course objectives** | To understand the significance, assumptions, applications, and limitations of the basic principles of Statics and Strength of Materials as they apply to the design and analysis of structural members and simple connections.  In this way, the student will be able to design different types of structures as an architectural element and also analyze it by considering aesthetic aspects. | | | |
| **Learning outcomes** | * Understand the basic concepts of stress, strain, deformation, and material behavior under different types of loading: axial, torsion, bending, * Perform stress analysis and design of beams subjected to bending and shearing loads using several methods, * Perform optimized-well shaped design of structures, * Understand and analyze special structures like monuments etc. | | | |
| **Teaching methods** | **Lecture** | | | x |
| **Experiential exercise** | | | x |
| **Assisted work** | | | x |
| **Assisted lab work** | | | x |
| **Others** | | |  |
| **Evaluation** | **Methods** | | **Date/deadlines** | **Percentage (%)** |
| **Midterm Exam** | |  | 25 |
| **Class Participation and Attendance** | |  | 5 |
| **Quizzes** | |  | 20 |
| **Lab Exercises** | |  | - |
| **Project (3 phases)** | |  | 15 |
| **Final Exam** | |  | 35 |
| **Total** | |  | 100 |
| **Policy** | • NO CELL PHONES are allowed during lecture and lab sessions. PLEASE turn them off before lecture! (Not silent or vibrating mode)  • No late assignments will be accepted without prior arrangement with the instructor for acceptable excuses. Medical and family emergency will be considered on case-by-case basis.  • No late homework will be accepted. Homework is to be completed on an individual basis. Students may discuss homework with classmates, but students are responsible for your own work. If students have consulted classmates, please note the individuals name on the top of students’ assignment.  • Quizzes may be given unannounced throughout the term and will count as one homework. There will be no make-up quizzes.  • No make-up exams. If students miss an exam, a zero score will be assigned to the missed exam.  • If students should miss class due to personal emergency or medical reasons, please notify the instructor by email immediately. A doctor’s note will be required for make-up work.  • Students are responsible for completing the reading assigned from the textbook related to the covered topics and for checking email regularly for important information and announcements related to the course.  • University policy on academic honesty concerning exams and individual work will be strictly enforced.  • BE ON TIME! | | | |

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| Tentative Schedule | | | |
| Week | **Date/Day** (Tentative) | Topics | Textbook/Assignments |
| 1 |  | Basic Concepts and Principles | Chapter 1 |
| 2 |  | Introduction to Optimization | Chapter 2 |
| 3 |  | Design Considerations | Chapter 3 |
| 4 |  | Loading systems | Chapter 4 |
| 5 |  | Loading systems | Chapter 4 |
| 6 |  | Buckling | Chapter 4 |
| 7 |  | Midterm exam | - |
| 8 |  | Case study | - |
| 9 |  | Case study | - |
| 10 |  | Pinned Frames & Hinged Arches | Chapter 5 |
| 11 |  | Distributed Loads on Beams, Concentrated Loads and Load Tracing | Chapter 5 |
| 12 |  | Mohr's circle | Chapter 6 |
| 13 |  | Shear and Bending Moment Diagrams | Chapter 7 |
| 14 |  | Design Project Reviews | Chapter 8 |
| 15 |  | Stability of Structures & Design | Chapter 8 |
|  |  | Final Exam |  |

This syllabus is a guide for the course and any modifications to it will be announced in advance.