

M.Sc. GRADUATE PROGRAM

Graduate students must take 15-18 credits from compulsory courses, 6-9 credits from elective courses, 2 credit from seminar and 6 credits from thesis, overall 32 credits to receive M.Sc. degree.

Curriculum for the Degree of Master of Science in Civil Engineering **Major Road and Transportation Engineering**

COURSE CODE	COURSE TITLE	CREDITS
Semester I		
1610500	Engineering Mathematics	3
1616560	Advanced Traffic Engineering	3
1616551	Advanced Soil Mechanics	3
Semester II		
1616562	Advanced Highway Design	3
1616554	Management and Maintenance of Road	3
1616556	Advanced Pavement Design	3
Elective Courses From		
1330577	Demand in Transportation	3
1612532	Design of Bridge	3
1612704	Advanced Concrete Technology	3
1616566	Railway Engineering	3
1310250	Operation Research	3
Semester III		
9010503	Seminar	2
9010606	M.Sc. Project	6
Semester IV		
9010606	M.Sc. Project (Continue)	0

COURSES DESCRIPTIONS

1610500 Engineering Mathematics

3 Cr.

Review on Basic Mathematics, Special Functions, Calculus of Variations, Difference Equations, Vectors and Matrices, Fourier Analysis, Partial Differential Equations, Complex Analysis.

Instructor: Dr. Nasrin Jafari, Dr. Bashir Movahedian, Dr. Nima Noormohammadi

1616556 Advanced Traffic Engineering

3 Cr.

Instructor: Dr. Mehdi Nasimifar

1616560 Advanced Traffic Engineering

3 Cr.

Instructor: Dr. Meysam Akbarzadeh

1616562 Advanced Highway Design

3 Cr.

Instructor: Dr. Seyyed Mehdi Abtahi

1616564 Management and Maintenance of Road

3 Cr.

Instructor: Dr. Seyyed Mehdi Abtahi

1616551 Advanced Soil Mechanics

3 Cr.

This course is a continuation of the soil mechanics theories and the recent empirical formula for this subject.

Instructor: Dr. Hamid Hashemolhoseini

1612532 Design of Bridge

3 Cr.

Criteria for Bridge Design, Highway Bridges Loading, Design Traffic Lanes, Live loads on Highway Bridges, Impact on Highway Bridges, Longitudinal Forces on Highway Bridges, Centrifugal Force on Highway Bridges, Sidewalk Loading, Wind Loading, Thermal Forces on Highway Bridges, Uplift on Highway Bridges, Forces of stream Current, and Ice on Highway Bridges, Earth Pressure on Highway Bridges, Earthquake Pressure on Highway Bridges, Loading Combinations on Highway Bridges, Load-Factor Design Loadings, Influence Lines and Design Forces, Design of Bridge Decks, Design of Reinforced Concrete Decks, Design of Precast Concrete Decks, Design of Prestressed/Post-tensioned Concrete Decks, Design of Composite I-Girder Decks, Design of Composite Box-Girder Decks, Design of Orthotropic-Plate Girder Decks, Design of Elastomeric Supports, Design of Abutments and Piers , Bridge Project

Instructor: Dr. Morteza Madhkhan

1612704 Advanced Concrete Technology

3 Cr.

Cement hydration, Strength of concrete, Time-dependent deformation in concrete, Additives in concrete, Concrete rheology, Concrete durability, Assessment of structural concrete, New types of concrete, Massive concrete issues

Instructor: Dr. Kiachehr Behfarnia, Dr. Mohammadreza Eftekhari