



**Isfahan
University of
Technology**

Department of Transportation Engineering

In The Name of God

Contents

	Page
Overview	1
Reasons to Study at this Department	4
Program Structures	5
Program Objectives	6
Research Areas	6
A Profile of the Labs	7
Industrial Projects	8
International Profile	10
Contributions to Sustainable Development	10



Overview

Founded in 2013, the Department of Transportation Engineering is the most recent addition to IUT. As the only graduate studies department of the university, the department is dedicated to preparing students for leadership in the profession of transportation engineering. The significant number of industries concentrated in the Greater Isfahan area coupled with the strategic location of the city provides students with an incomparable opportunity to ground-breaking local transportation engineering projects and participate in professional activities. The department's strategic vision lies in conducting cutting-edge interdisciplinary research that addresses societal needs for well-designed, well-operated, reliable, and resilient transportation systems. The department continuously pushes to develop an environment of intellectual vitality where students, department, and staff have the prospect and the impetus to accomplish their highest potential. At the present time, the department admits applicants only for M.Sc. degree in Transportation Planning. Ph.D. program in Transportation Engineering and M.Sc. programs in Rail Transportation Engineering and Urban Engineering are under development, and applications in these programs will be accepted in near future.

Website: tr.iut.ac.ir

Telephone: **+98 31 3391 1400**

Fax: **+98 31 3391 1401**

دانشکده مهندسی حمل و نقل



Department of Transportation Engineering





Reasons to study at this department

- Small class sizes, qualitative supervision, and directed research, thanks to being a graduate studies department
- Collaboration with national/ international research centers and scholars
- Strong collaborative research with Civil Engineering, Industrial Engineering, Mechanical, and Natural Resources Engineering Departments as well as Mathematics and Physics Departments at IUT
- Close working relationships with prominent institutions such as ETH Zurich, EPFL, TUM, University of Illinois at Chicago, and University of Memphis
- Lectures involving real-world applications and problems, project-based workshops and assignments, seminars, and field trips
- Stimulating environment for both fundamental and applied research
- Close ties with national transportation organizations in Iran such as Ministry of Roads & Urban Development, Iranian Railway Company, Iranian Road Maintenance and Transportation Organization, National Iranian Oil Products Distribution Company, Training & Research Center of the Railways of the Islamic Republic of Iran.
- Close ties with local transportation agencies in different provinces and cities of Iran such as Road Organization of Isfahan Province, Municipality of Isfahan, Municipality of Qom, and Municipality of Ahvaz.



Program Structures

Compulsory / optional:

Thesis-track students are required to take seminar (2 credits) and eight graduate-level courses (24 credits). Four out of the eight courses are mandatory and four are elective. The latter can be taken from other departments (e.g., Civil and Industrial Engineering Departments). Non-thesis students need to take seminar as well as 10 courses, of which four are mandatory.

Thesis:

Thesis-track students are required to take 6 credits of MSc thesis.

- Students are required to submit the proposals of their thesis research to the department's director of graduate studies (DGS). Proposals will be reviewed by multiple faculty members and feedbacks will be provided to students. Each proposal must be finally approved by the committee appointed by the DGS.
- To complete thesis research each student is required to submit his/her thesis to the department and defend the thesis in a formal, open-to-public session. Graduation is conditional on approval of the defense committee.

Program Objectives

Practice-oriented:

All courses are practice-oriented in the sense that students perfect their knowledge by applying methods that they have learned in the lectures to simple and then real-world problems.

Requirements for technology and environment:

- **Acquiring methodological skills:**
course materials including both lectures and assignments are designed such that students understand and learn the step-by-step process of developing methodologies ultimately leading to an approach or process that can be utilized to solve a real-world problem.
- **Acquiring professional skills:**
Most courses involve one or multiple projects through which the students learn and apply a commercial software widely used in practice. This would give students an edge in competition for jobs as well as continuation of their studies toward PhD.
- **Acquiring Social Skills:**
Some courses involve team projects through which students not only practice how to work in a group but also enhance their social skills.

Research Areas

The research interests of the faculty members of the department cover a wide range of both fundamental and applied research questions in rail transportation planning and operations, traffic engineering, transportation safety, infrastructure investment and management, policy making in transportation engineering, designing integrated networks of production and transportation, multi-agent transportation systems, integrated land-use and transportation models, and transport accessibility analysis.



A Profile of the Labs

Transportation and Logistics Network Laboratory (TLNL)

Regarding the fundamental effects of the logistics and transportation systems on the movement of passengers and commodities by different modes at municipal, national, and international scales, TLNL carries out original research for solving problems in the areas of network design, facility location, pricing, supply chain scheduling, and integrated planning of production and distribution networks incorporating social, economic, and environmental dimensions. The purpose of TLNL is to find solutions for the problems observed in practical arenas and to push the boundary of knowledge in the area of logistics networks .

Transportation and Urban Planning Laboratory (TUPL)

TUPL is a platform that connects multidisciplinary ideas for problem-finding and solving in cities with a particular focus on land use and transportation systems. This laboratory follows the below research directions:

- *Designing and developing land-use transportation interaction models*
- *Analyzing and evaluating the short- and long-term effects of changes in transportation and land use on the urban systems*
- *Developing multi-level transportation and land-use optimization models*
- *Developing analytical-theoretical models for the explanation of travel behavior concerning the built environment and attitudes*
- *Modeling and evaluating accessibility and spatial phenomena*



Industrial Projects

While the Department is the youngest in the university, it has been among the leaders in accomplishing external projects. Indeed, the ratio of generated income over the number of the faculty members is the highest in the university. Industrial projects give students an opportunity to familiarize themselves with real-world problems, their solutions, and the way through which solutions are developed.

Selected Research Projects

- Application of AFC and AVL Data mining on Management of Public Transport Operation in Isfahan City, Sponsor: Isfahan and Suburbs Bus Company
- Evaluation of possible Traffic Restriction Policies in the CBD of Isfahan City, Sponsor: Municipality of Isfahan
- National Comprehensive Transportation Planning, The part of Freight Mode Choice, Sponsor: Ministry of Roads & Urban Development
- Investigating the Privatization Requirements for Construction of Infrastructure in Iranian National Railway Network, Sponsor: Iranian Railways Company
- Analysis of Freight Demand and Capacity of Railway Corridors in Iran Sponsor: Iranian Railways Company
- Comprehensive Assessment of Air Pollution in Iranian Cities: The Case of Large Qom area, Sponsor: Iran Department of Environment
- Comprehensive Study of Development of Isfahan Province Roads Sponsor: Iran Ministry of Road and Urban Development
- Optimal National Network Design of Iranian Railway System Subject to Demand and Development Requirements, Sponsor: Iran Ministry of Road and Urban Development
- Design of the Mega-strategy of INTP (the Integrated Network of Processing and Transportation): Iran's National Elites Foundation (In progress)



International Profile

University Partners (in research & education):

Currently the faculty members are conducting joint research with scholars from ETH Zurich, EPFL, TUM, IFISC, Universidad de Zaragoza University of Illinois at Chicago, University of Memphis, KTH Royal Institute of Technology, and Institute of the Built Environment and Spatial Policy at University of Łódź..

International Associations:

Dr. Meisam Akbarzadeh is a member of Transportation Research Board Committees on Artificial Intelligence and Advanced Computing Applications (ABJ70) and Artificial Intelligence Application in Transportation (AED50).

Dr. Talebian is a member of Transportation Research Board Standing Committees on Public Transportation Planning and Development (AP025). He also serves on the editorial board of the Journal of Advances in Applied & Computational Mathematics.

Contributions to Sustainable Development

With considering environmental, social, and economic impacts of transportation, sustainable transportation makes significant contribution to achieving urban sustainable development goals. The Department of Transportation Engineering has been actively conducting research to realize sustainable transportation goals in local, regional, and national levels. Selected research projects in this

- Sustainable development approach to rail network design

- *Micro-scale sustainability assessment of infrastructure projects on urban transportation systems*
- *Carbon emission trading in transportation systems*
- *Developing sustainable transportation accessibility measurement*
- *Policy making to encourage hybrid and electric vehicles*
- *Assessment of surrogate safety measures in rural and urban road and intersections*
- *Sustainable international transportation corridors*
- *Sustainable transportation indicators analysis by modeling world cities modal share appropriate indicators for the elderly's transportation evaluation in urban area*
- *Government interventions to support green transportation systems.*

We would like to express our sincere thanks to the faculty members at the Department of Transportation Engineering, and our colleagues at International Scientific Cooperation Center (ISCC) for sincere assistance in producing this prospectus.

 Tel: **+98 (31) 33912505-6**
 Fax: **+98 (31) 33912511**
 Email: **international@iut.ac.ir**
 Website: **www.international.iut.ac.ir/en**

 Instagram: **IUT_International**
 Telegram: **IUT_International**
 LinkedIn: **Isfahan University of Technology**

