Transportation & Logistics (TL)

TL 711. Logistics Systems. 4 Credits.
Foundation material critical to establishing effective supply chains in various decision making environments. Topics include inventory theory, forecasting, aggregate planning, and project management. Decision making techniques include linear programming, process flow analysis, and simulation.

TL 715. Enterprise Resource Planning. 3 Credits.
This course introduces students to Enterprise Resource Planning (ERP) and its implementation. Topics covered from the perspective of ERP include: process integration, value chain management, international implementations, organizational change management, project management, and knowledge management.

TL 719. Crisis Analysis and Homeland Security. 3 Credits.
Provides an integrated approach to crisis analysis and response within the contexts of military logistics and homeland security. Focus is on the social and cultural context of emergencies, disasters and catastrophes.

TL 721. International Logistics Management. 4 Credits.
This course provides a coherent perspective on contemporary global logistics from raw materials through production to the customer. Addresses the roles of governments and intermediaries, international sourcing and the application of local trade laws. Discussion of economic, political, and social issues that may affect international transportation. Prereq: TL 711.

TL 723. Advanced Supply-Chain Planning Across the Enterprise. 3 Credits.
Builds on theories and tools developed in TL 711. By understanding both current capabilities and evolving needs of an organization, the appropriate modifications to the organization's supply chain can be identified. Prereq: TL 711.

TL 725. Technology Advances and Logistics. 3 Credits.
This course addresses the new technologies that help shape advanced logistics and the advantages that such technologies have brought to end users, suppliers, and a broad spectrum of related industries. Prereq: TL 711.

TL 727. Organizational Change Management. 3 Credits.
Change management as the process of making either incremental improvements or radical changes to an organization for the purpose of enhancing both organizational and individual effectiveness. A multi-perspective systems viewpoint is employed, stressing pragmatic implications for leadership.

TL 729. Adaptive Planning in Logistics Systems. 3 Credits.
Presents a systems view with a focus on how remote sensing technology enables sense and respond logistics. Topics include organizational structure, strategic alliances, programmed decision making, supply-chain dynamics, and the value of information transparency. Prereq: TL 711.

TL 731. Logistics Decision Analysis. 3 Credits.
This course covers collection, management and analysis of logistics information necessary to make good decisions as well as quantitative decision analysis models for systematic evaluation of decision situations involving uncertainty, complexity, alternatives, and preferences.

TL 733. Case Studies in Logistics. 3 Credits.
This course will focus on actual logistics cases along with solutions and how individual/organizational decisions relate to the ultimate outcome. Analyzing processes which would have reduced/eliminated the supply chain's susceptibility to success or failure. Prereq: TL 721, TL 723, TL 725, TL 729. S/U grading.

TL 735. Acquisition Contracts: Law and Management. 3 Credits.
Study of the legal framework in the contracting process with emphasis on the law and legal processes of acquisition contracts.

TL 751. Transportation Systems Security. 3 Credits.
This course examines security threats and solutions related to transportation systems. Specific focus is placed securing passenger and freight modes of transportation including railroad, highway, aviation, maritime and pipelines from acts of terrorism and intentional disruption.

TL 752. Transportation Planning and Environmental Compliance. 3 Credits.
This course provides an overview of the procedures of transportation planning and environmental compliance, to include an understanding of the related policies and procedures as they relate to transportation systems, and compliance with local, state, and federal laws. A discussion of emissions, hazardous cargo, and permitting also will be provided.

TL 753. Transportation System Modeling. 3 Credits.
This course focuses on quantitative techniques used for planning and operation of transportation systems. Topics include: system capacities and flows, comprehensive models of transportation and urban systems, and understanding how political processes, new technologies, and economic considerations affect transportation decisions.

TL 754. Urban Transportation Systems Analysis. 3 Credits.
This course provides students with an understanding of system analysis tools used in urban transportation. Students will work with analytical techniques employed in urban transportation planning, such as traffic forecasting and system capacity analysis and apply these techniques using real-world data for analyzing both the demand and supply of transportation.

TL 755. Context Sensitive Solutions. 2 Credits.
Context Sensitive Solutions (CSS) examine, in addition to traditional transportation engineering factors, impacts on the community as well as the natural and human environment. This course will introduce students to the main principles of CSS and allow them to learn how they are applied through use of case studies.

TL 756. Transportation Systems Laboratory. 3 Credits.
This course applies urban transportation, traffic engineering, and data collection methods to real-world case studies in small urban areas. Students will work with a community to conduct a comprehensive urban transportation study, including data collection, assessment of current conditions, evaluation, alternative solutions, and presenting the findings.

TL 782. Transportation Systems I. 3 Credits.
This course provides an overview of transportation systems, including relationships among transportation, the economy, environment, and land use. The focus is on highway and freight transportation (including demand, capacity, cost, service, and investment analysis) with applications to multimodal corridor planning.

TL 783. Transportation Systems II. 3 Credits.
This course focuses on railroads and freight multimodal planning. It includes an introduction to railroads, an overview of the railroad industry and services, cost models, regulations, energy requirements, route analysis, operations, line capacities, intermodal terminals, environmental considerations, and multimodal freight issues. Prereq: TL 782.

TL 785. Spatial Analysis in Transportation. 3 Credits.
This course focuses on applications of Geographic Information Systems (GIS) to transportation networks and problems. The emphasis is on data modeling. Topics include: linear referencing, dynamic segmentation, network analysis, urban and land use planning, routing of hazardous materials, and asset management applications.

TL 786. Public Transportation. 3 Credits.
This course focuses on public transportation issues and models. Topics include: policy issues, government's role in transit, transit planning, demand forecasting, performance evaluation, and system costing. Students will work on projects directly related to a transit system. Industry experts will provide guest lectures. Prereq: TL 782.

TL 787. Public Transportation II. 3 Credits.
This course focuses on concepts and modeling procedures used when planning and operating public transportation systems. Topics covered include transit demand analysis, quality of service concepts and estimation, bus and rail capacity, and service planning. Prereq: TL 786.

TL 788. Research in Transportation and Logistics. 3 Credits.
This course focuses on the conduct of scientific research in transportation and the application of a wide range of quantitative methods to transportation problems. The emphasis is on selecting the appropriate techniques for a problem and integrating them into interdisciplinary models. Critical research issues are highlighted.

TL 789. Leadership, Ethics, and Academic Conduct in Transportation. 3 Credits.
This course focuses on academic conduct in students' educational programs, and then goes on to explore theories, concepts, and practices of leadership and ethics that students may apply to their academic programs and transportation careers.

TL 790. Graduate Seminar. 1-5 Credits.

TL 791. Temporary/Trial Topics. 1-5 Credits.

TL 793. Individual Study. 1-5 Credits.

TL 794. Practicum/Internship. 1-8 Credits.

TL 795. Field Experience. 1-10 Credits.

TL 796. Special Topics. 1-5 Credits.

TL 797. Master's Paper. 1-3 Credits.

TL 798. Master's Thesis. 1-10 Credits.

TL 811. Modeling for Logistics Research. 4 Credits.
Models used in logistics research are studied. Topics include statistical models, mathematical programming, network models, stochastic decision processes, and simulation. The ability to perform and present logistics research is cultivated.

TL 823. Contemporary Supply Chain Research. 3 Credits.
This course focuses on contemporary research in supply chain management. Topics include advertising, information technology, game theory, supply chain contracts, and sustainability. The ability to perform and present supply chain research is cultivated. Prereq: TL 811.

TL 829. Supply Chain Risk Management. 3 Credits.
This course focuses on risk management in supply chains. Topics include random yields, exchange rates, real options, complex systems, and disruptions. The ability to perform and present supply chain risk management research is cultivated. Prereq: TL 811.

TL 831. Modeling for Transportation and Logistics Decision Analysis. 3 Credits.
This course emphasizes critical thinking skills and excel spreadsheet modeling skills to solve, and analyze logistics and transportation issues. It includes an introduction to modeling, excel, add-in tools, optimization, and uncertainty analysis. Prereq: ENGR 770.

TL 885. Geospatial Information Systems for Transportation. 3 Credits.
This course focuses on spatial analysis in transportation using Geographic Information Systems to build research framework and solve problems in transportation and logistics. The emphasis is on data modeling and the cutting-edge theories. Prereq: GEOG 655 or TL 785.

TL 899. Doctoral Dissertation. 1-15 Credits.