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. Introduction to ERP. 3 Credits.
This course introduces students to Enterprise Systems and their implementation. Topics covered include: process integration, value chain management, 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. ERP Configuration. 3 Credits.
Examines the impact of sensor network systems driving business data collection, and the configuration of Enterprise Systems. Includes peer reviewed articles pertaining to enterprise network system application theory with a focus on supply chain systems. Prereq: TL 715.

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.

TL 735. Practical Data Analytics. 3 Credits.
This course provides a comprehensive overview of data analytics and business intelligence concepts with practical experience using market-leading enterprise software solutions. Topics include data management, the extract-transform-load process, data cleansing, data reporting and visualization, building dashboards, development and use of online analytical processing (OLAP) cubes, data warehouses, and data mining.

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. 3 Credits.
Examine traditional transportation engineering factors, impacts on communities, and natural and human environments. Introduce students to principles of CSS and allow them to learn how they are applied through case studies and demonstrated principles.

TL 756. Transportation and Land Use Integration. 3 Credits.
This course provides students with an understanding of the interrelationships that exist between land use and transportation and the related impacts to the economy, environment and to society as a whole in the planning context.

TL 757. Intelligent Transportation Solutions. 3 Credits.
Fundamentals and field studies of information technologies deployed and emerging to address critical transportation issues such as congestion, safety, security, and energy efficiency.

TL 781. Program Evaluation. 3 Credits.
This course details program evaluation and its usefulness to organizational planning. Students will learn how program data is relevant to evaluation, scoping, research methods, assessment, planning, and sharing findings with topic experts.

TL 782. Highway Planning and Logistics. 3 Credits.
Fundamentals of highway transportation and freight logistics, including motor carrier economics and operations, effects of heavy trucks on highway infrastructure, truck size and weight issues, regulations, highway classifications, highway capacity planning, and level of service.

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.
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.

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 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.