

## TRANSPORTATION SYSTEMS

**Chairperson of Department: PROFESSOR ANTHONY A. SAKA; Associate Professor: YOUNG-JAE LEE; Associate Professor MANSOUREH JEIHANI; and Assistant Professor: CELESTE N. CHAVIS**

### THE MAJOR IN TRANSPORTATION SYSTEMS

The B.S. degree program in Transportation Systems provides a hybrid curriculum that prepares students for entry-level professional positions in transportation planning, systems analysis, management, and logistics; or for pursuing advanced studies. The program is technical with an applied science focus, and requires a minimum of 130 credit hours of coursework, which includes 48 credit hours in general educational, 20 credit hours of mathematics and science, 56 credit hours in core courses, and 6 credit hours in electives. The core courses expose the students to the major transportation concentration areas, including planning, engineering, economics, management, and logistics.

#### OBJECTIVES

The program graduate will:

- Utilize system approach to articulate, study, and mitigate transportation problems
- Apply latest technology and sustainability paradigm to efficiently plan, implement, analyze, evaluate, and manage components of the transportation systems
- Utilize effective communication, team, leadership and total quality management skills to work productively within their professions and communities
- Pursue professional development and advanced studies to meet the emerging and evolving demands, and increasing responsibilities of a successful career
- Conduct themselves as responsible professionals and citizens

#### PROGRAM OUTCOMES

The program graduates will be able to:

- Develop knowledge of local and global cross-cutting issues and challenges in transportation and engage in life-long learning
- Formulate or design a system, process, or program to meet desired needs
- Apply mathematics, science, technological tools, and principles of engineering, planning and management to solve complex transportation-related problems
- Understand the impact of solutions in a global and societal context
- Communicate effectively and function on multidisciplinary team
- Design and conduct experiments as well as analyze and interpret data
- Understand professional and ethical responsibility, and recognize the Institute of Transportation Engineers (ITE) Canons of Ethics for Members

#### A. General Education and University Requirements

Course #	Course Title	Credits
BIOL 101	Introduction to Biology	4
CHEM 110	General Chemistry for Engineers	4
ECON 212	Principles of Economics II	3
ENGL 101	Freshmen Composition I	3
ENGL 102	Freshmen Composition II	3
GENL 201	Computer Literacy, Technology, Society & Human Values	2
HEED 100	Healthful Living	2
HIST 101/105	World History I or US History I	3
HIST 102/106	World History II or US History II	3
HIST 350	Introduction to Black Diaspora	3
HUMA 201	Introduction to Humanities I	3
HUMA 202	Introduction to Humanities II	3
MATH 113	College Algebra	4
ORIE 104	Introduction to Engineering	1
PHEC XXX	Physical Education Elective	1
PHIL 109	Introduction to Logic	3
PHIL 220	Ethics and Values	3
<b>Total Credits</b>		<b>48</b>

#### B. Mathematics and Science Requirements

Course #	Course Title	Credits
MATH 118	Finite Mathematics	3
MATH 141/114	Pre-Calculus	4
INSS 220	An Introduction to Probability and Decision Making OR	
MATH 205	Statistics & Discrete Math	3
MATH 241	Calculus I	4
PHYS 205	Physics I	5
CHEM 110L	Chemistry Lab	1
<b>Total Credits</b>		<b>20</b>

*C. Transportation Requirements*

<i>Course #</i>	<i>Course Title</i>	<i>Credits</i>
ENGL 355/357	Technical or Business Writing	3
GEOG 309	Urban Land Use OR	
TRSS 305	Urban Land Use Planning	3
TRSS 105	Seminar on Professional Practice	1
TRSS 205	Seminar on Professional Practice	1
TRSS 301	Introduction to Transportation Systems	3
TRSS 307	Freight Transportation Systems & Logistics	3
TRSS 318	Transportation Planning & Policy	3
TRSS 319	Geographic Information Systems	3
TRSS 399	Transportation Practicum	3
TRSS 402	Transportation Economics	3
TRSS 406	Public Transportation Systems	3
TRSS 408	Advanced Logistics Systems	3
TRSS 410	Management of Transportation Systems OR	
MGMT xxx	Approved Management Elective	3
TRSS 412	Transportation Infrastructure/Asset Management	3
TRSS 414	Traffic Engineering	3
TRSS 415	Highway Engineering	3
TRSS 416	Microcomputer Applications in Transportation	3
TRSS 417	Intelligent Transportation Systems	3
TRSS 418	Advanced Transportation Planning	3
TRSS 420	Transportation Systems Evaluation	3
TRSS 499	Senior Transportation Project	3
Total Credits		62

**MORGAN STATE UNIVERSITY  
SCHOOL OF ENGINEERING  
TRANSPORTATION SYSTEMS  
CURRICULUM COURSE SEQUENCE**

**Freshman Year: Fall Semester**

ENGL 101	Freshman Composition I	3
BIOL 101	Introduction to Biology	4
HIST 101 / 105	World History/US History I	3
ORIE 104	Introduction to Engineering	1
MATH 113	Intro to Math Analysis I	4
PHEC XXX	Physical Education	1
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**Freshman Year: Spring Semester**

TRSS 105	Seminar on Professional Practice	1
ENGL 102	Freshman Composition II	3
HIST 102/ 106	World History/US History II	3
MATH 114	Intro to Math Analysis II	4
XXX	Approved Elective	3
HEED 100	Healthful Living	2
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**Sophomore Year: Fall Semester**

ECON 212	Principles of Economics II	3
MATH 118	Finite Mathematics	3
CHEM 110	General Chemistry for Engineers	5
HUMA 201	Introduction to Humanities I	3
PHIL 109	Introduction to Logic	3
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**Sophomore Year: Spring Semester**

INSS 220	Analytical Decision Making for Business & Management OR	
MATH 120	Introduction to Probability and Decision Making	3
TRSS 205	Seminar on Professional Practice	1
TRSS 301	Introduction to Transportation Systems	3
PHIL 220	Ethics and Values	3
HUMA 202	Introduction to Humanities II	3
GENL 201	Computer Literacy	2
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**Junior Year: Fall Semester**

MATH 241	Calculus I	4
GEOG 309	Urban Land Use OR	
TRSS 305	Urban Land Use Planning	3
TRSS 307	Freight Transportation Systems and Logistics	3
TRSS 319	Geographic Information Systems	3
HIST 350	Introduction to Black Diaspora	3
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**Junior Year: Spring Semester**

TRSS 318	Transportation Policy & Planning	3
TRSS 408	Advanced Logistics & Supply Chain Management	3
TRSS 410	Management of Transportation OR	
MGMT	Management Elective	3
TRSS 417	Intelligent Transportation Systems	3
PHYS 205	Physics I	5
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**Junior Year: Summer**

TRSS 399	Transportation Practicum	3
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**Senior Year: Fall Semester**

TRSS 406	Public Transportation Systems	3
TRSS 412	Transportation Infrastructure/Asset Management	3
TRSS 414	Traffic Engineering	3
TRSS 415	Highway Engineering	3
ENGL 355	Technical Writing OR	
ENGL 357	Business Writing	3
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**Senior Year: Spring Semester**

TRSS 402	Transportation Economics	3
TRSS 416	Microcomputer Applications in Transportation	3
TRSS 418	Advanced Transportation Planning	3
TRSS 420	Transportation Systems Evaluation	3
TRSS 499	Senior Transportation Project	3
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**Total credits: 130**