NATIONAL ACADEMIES
Sciences
Engineering
Medicine

TRB
TRANSPORTATION RESEARCH BOARD

Workshop to Broaden the Diversity of the Skilled, Technical Transportation Workforce

Federal Transit Administration

NSF

SEPTEMBER 18, 2024

NATIONAL ACADEMIES
Sciences
Engineering
Medicine

TRB
TRANSPORTATION RESEARCH BOARD

Panel 3: Developing Successful Training Programs

Federal Transit Administration

NSF

Susan Baillargeon

Highway Maintenance Program Director

Front Range Community College

BUILDING ROADS TO A CAREER IN TRANSPORTATION OPERATIONS

Professional Development Opportunities to Maintenance and Operations Employees

CDOT PARTNERSHIP

- Traffic Control Supervisor = 2 credits
- NHI Maintenance Leadership Academy= 4 credits
- AASHTO TC3 courses
  - 5 preservation courses = 2 credits
  - 2 asset management course = 1 credit

Other CDOT training and workplace knowledge eligible for credits

- CDL 6 credits
- FEMA 100,200,700, &800 6 credits

Total of 21 credits

Our Partners

MARYLAND DEPARTMENT OF TRANSPORTATION

JORGENSEN
Roy Jorgensen Associates, Inc.

RoadSafe
TRAFFIC SYSTEMS
Life on the road

ATSSA
SAFER ROADS SAVE LIVES

Colorado
Local Technical Assistance Program

national highway institute

CERTIFIED PUBLIC WORKS SUPERVISION PROFESSIONAL
APWA
CPWP-S

CERTIFIED PUBLIC WORKS MANAGEMENT PROFESSIONAL
APWA
CPWP-M

NC LTAP
Local Technical Assistance Program

FEMA

COLORADO
Department of Transportation

NEVADA
LTAP | LOCAL TECHNICAL ASSISTANCE PROGRAM

CITY OF Highland Village

LOVELAND BARRICADE

★ TEXAS ★

★ COLORADO ★

★ NEW MEXICO- RAMAH NAVAJO TRIBAL NATION ★

★ MARYLAND ★

Connecticut

Illinois

Indiana

Nevada

North Carolina

Ohio

South Dakota

Tennessee

Vermont

Virginia

Washington

LOCAL AGENCY EMPLOYEES

YOUR TRAINING PROGRAMS

COLLEGE CREDITS THROUGH PRIOR LEARNING

ASSOCIATE'S DEGREE IN HWY MAINTENANCE MANAGEMENT

PROFESSIONAL TRANSPORTATION OPERATIONS INDUSTRY

For more information contact me:

Susan.Baillargeon@FrontRange.edu

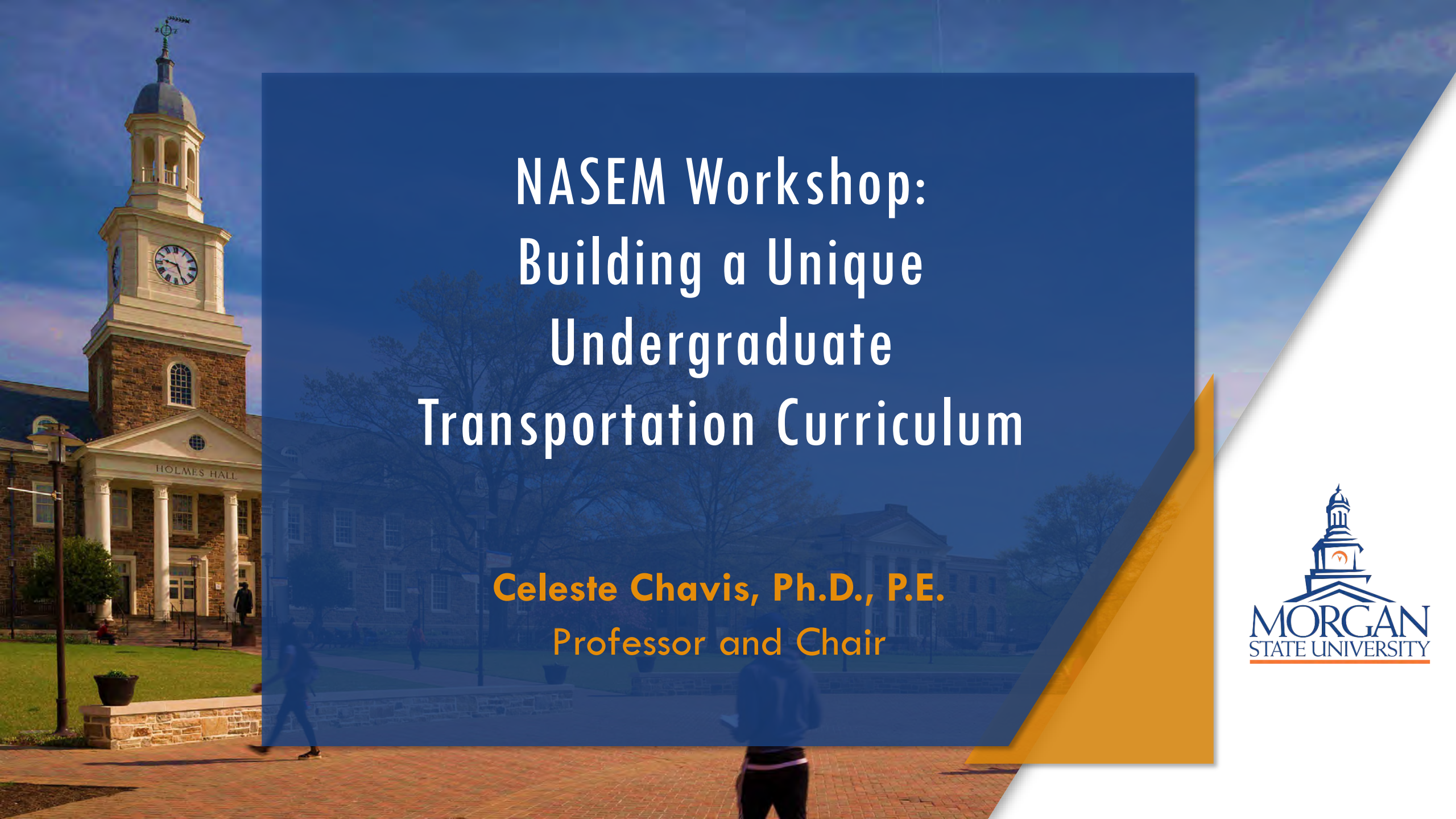
HIGHWAY MAINTENANCE MANAGEMENT

ONLINE AAS DEGREE PROGRAM

Dr. Celeste Chavis

Professor and Chair of the Department of Transportation and Urban Infrastructure Studies

Morgan State University



NASEM Workshop: Building a Unique Undergraduate Transportation Curriculum

Celeste Chavis, Ph.D., P.E.
Professor and Chair

MORGAN STATE UNIVERSITY

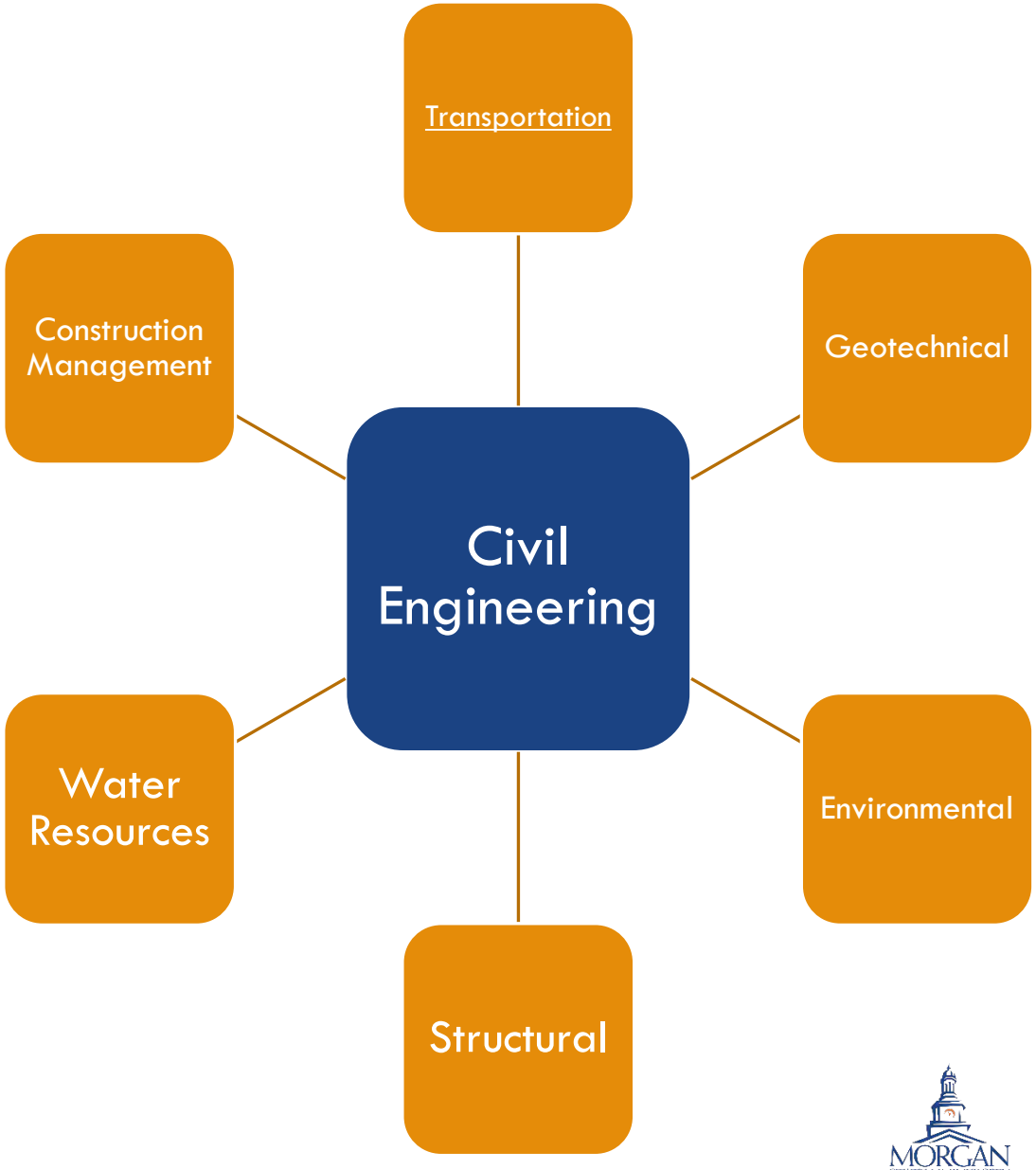
WHY TRANSPORTATION @ MORGAN

- **Most Comprehensive Undergraduate Transportation Program in the U.S**
- Interdisciplinary Focus
- Two undergraduate degrees: Applied Science & Engineering + Track in Railway Engineering
  - B.S. in Transportation System (ABET ANSAC accredited)
  - B.S. in Transportation Systems Engineering (ABET EAC accredited)
- Masters in Urban Transportation
- PhD in Transportation and Urban Infrastructure Systems
- Graduates work in public and private sectors in the fields of Engineering, Planning, & Logistics!

ABET

TRADITIONAL TRANSPORTATION ENGINEERING CURRICULUMS IN THE U.S.

- Students get exposed to various specializations in the transportation field
- Take technical electives (~3 courses) in a specialization of their choosing



MORGAN STATE UNIVERSITY

WHERE DO YOU COMMONLY FIND TRANSPORTATION COURSES IN A UNIVERSITY?

Civil Engineering
Geometric design
Traffic engineering

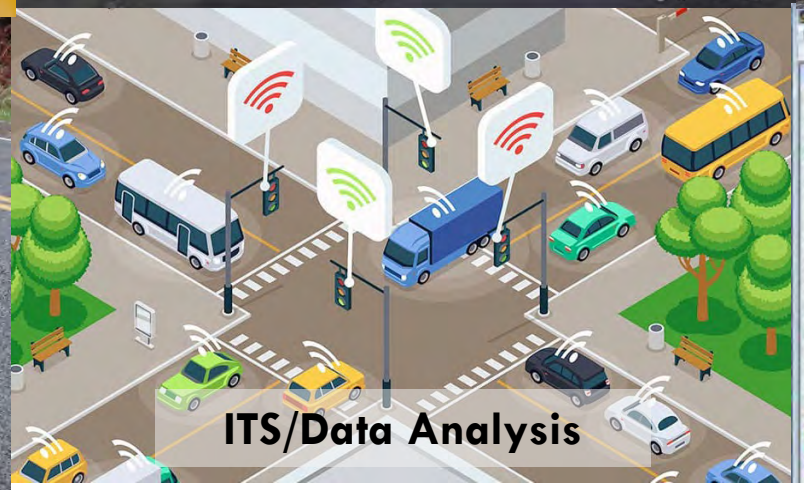
Industrial Engineering
Route optimization
Scheduling

City Planning
Transportation forecasting
Land use / Urban form

Business: Logistics/Supply Chain Management
Inventory management
Goods movement

TRANSPORTATION @ MORGAN

Our UG Students take over 40 credits of transportation classes!



TRANSPORTATION @ MORGAN

Our UG Students take over 40 credits of transportation classes!

General / Professional Development

- Seminar On Professional Practice
- Introduction to Transportation Systems
- Transportation Practicum
- Senior Transportation Seminar
- FE Exam Seminar
- Senior Transportation Project

Design & Operations

- Freight Transportation Systems and Logistics
- Advanced Logistics and Supply Chain Management
- Public Transportation Systems
- Traffic Engineering
- Highway Engineering

Rail Transportation

- Introduction to Rail Transportation Systems
- Rail Transportation Engineering
- Rail Transportation Safety & Derailment
- Rail Inspection & Management

Infrastructure & Management

- Economics of Transportation
- Management of Transportation Systems
- Urban Infrastructure Planning and Management
- Transportation Systems Evaluation

ITS/Data Analysis

- Geographic Information Systems
- Transportation Data Analytics
- Intelligent Transportation System

Planning & Policy

- Urban Land Use Planning
- Transportation Planning and Policy
- Advanced Transportation Planning

WHO WE SERVE? BALTIMORE CITY RESIDENTS

Asanat Animashaun
MS Student, Urban Transportation
B.S. in Transportation Systems Engineering (2023)
Former UG Research Assistant

Transportation Associate II,
Baltimore City DOT

Stefanie Nellons-Paige
Class of 1985,
M.S. Urban Transportation

Nellons-Paige Group

WHO DO WE SERVE? COMMUNITY COLLEGE TRANSFER

Nathan Owhonda
M.S. Student, Urban Transportation
B.S. in Transportation Systems Engineering (2023)

Maryland State Highway Administration

Fathy Elgendi
Class of 2012, B.S. in Transportation Systems
Class of 2015, M.S. in Urban Transportation
Class of 2020, Doctor of Engineering

Transportation Engineer V
Maryland Transportation Authority

WHO DO WE SERVE? PRACTITIONERS SEEKING ADVANCED DEGREES

Nicole Anderson
PhD Student, Transportation & Urban Infrastructure Systems
Eisenhower Fellow
SMARTER Scholarship Recipient

Program Analyst, USDOT Hazmat Materials and Safety Office

Monica White-Mark
M.S. in Urban Transportation (2019)

Associate, Whitman, Requardt and Associates Former Transit Administrator, Baltimore DOT

WHO DO WE SERVE? ACTIVE MILITARY

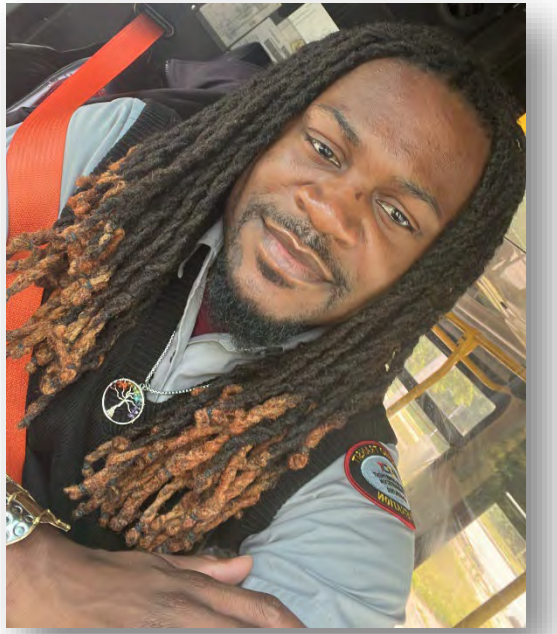
Marquis Byrd
Senior, Transportation Systems Engineering

Airway Transportation Systems Specialist, FAA
Technical Sergeant,
US Air Force Reserve

Jawiyambe Thomas-James
B.S. in Transportation Systems (2020)

Operations (Transportation) Officer,
1st Lieutenant, US Army

WHO DO WE SERVE? TRANSITION FROM OPERATOR TO ENGINEER



Sean Holley

Junior, Transportation Systems Engineering + Rail Track

MTA Bus Operator

Montrae Jones

B.S. in Transportation Systems (2020)

Former Eisenhower Fellow

Former TRB Minority Fellow

Senior Transportation Planner, WSP

wsp

Senior Transportation Planner (2024)

dot DEPARTMENT OF TRANSPORTATION BALTIMORE CITY

Transit Services Admin. (2023)

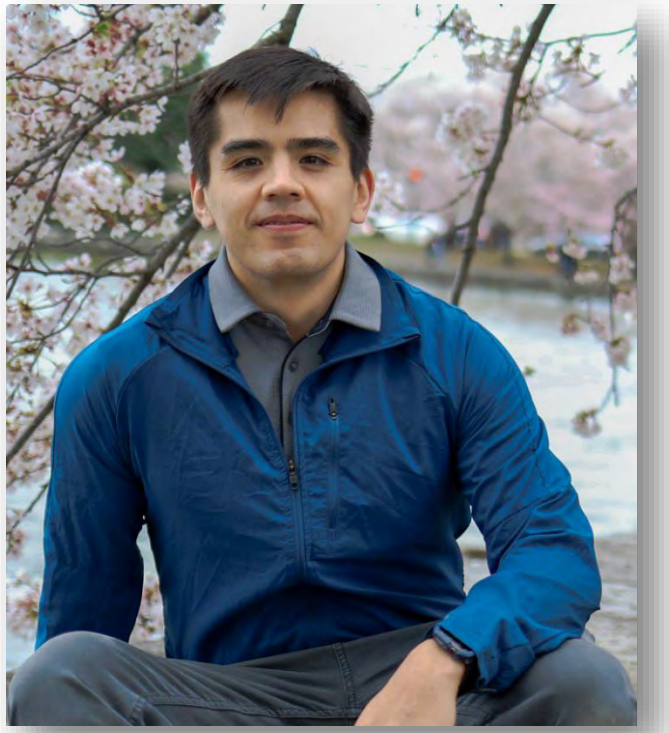
Transit Planner II (2021)

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION

Project Manager (2020)

Bus Operator (11 years)

WHO DO WE SERVE? INTERNATIONAL & FIRST GENERATION AMERICAN



Amilcar Rios Salomon
Masters Student,
Urban Transportation

Engineer in Training
KCI Technologies, Inc.

Joseph Abujana
Current Doctor of Engineering Student
Master of Engineering (2021)
B.S. in Transportation Systems (2017)
Class of 2009, Summer Transportation Institute

Research Analyst, JMT Technology Group

WHO WE SERVE? THOSE MAKING CAREER PIVOTS

Evan Taylor
PhD Student, Transportation & Urban Infrastructure Systems
TRB Minority Fellow
SMARTER Scholarship Recipient

Head of Innovation, M&T Bank
Former H.S. Educator

Jonathan Howard
M.S. in Urban Transportation (2016)

Community Planner, Travel Forecasting
Federal Transit Administration

Previous: Claims Representative at Social Security Administration

HOW THE RESEARCH & THE UTC HELPS THE DEPARTMENT

Research for Students & Faculty

- Students conduct research through the center and supporting programs like Eisenhower Fellowship & TRB Minority Fellows Program
- Important source of funding for faculty that has been leveraged to get funding from other sources

Scholarships & Assistantships

- Scholarships and assistantships available for undergraduate and graduate students

Internship Programs & Workforce Development

- Recruitment / Summer Transportation Institute
- Internship Programs (Cambridge Systematics, MDOT)

Other Department Support

- Classes & capstone projects
- Exposure to cutting edge software & platforms

Local, State, and National Exposure

- Faculty sit on local committees (MD CAV, Baltimore Regional Transit Commission) and are members of professional organizations such as TRB and ITE.

STRENGTHS & CHALLENGES

Strengths

- Been able to position as program as a leader amongst HBCUs in the transportation space
- Employers feel the program is more reflective of industry

Challenges

- HR filters sometimes make it difficult for our students to get looked at for jobs
- Some graduates may need to fill in some gaps when taking their FE & PE exam
- Publicizing our program!

HOW THE UTC HELPS THE DEPARTMENT

MORGAN STATE UNIVERSITY
GROWING THE FUTURE
LEADING THE WORLD™

Local, State, and National Exposure!!

My career goal is to be of service to the people of my community by helping to improve the safety, efficiency, and accessibility of commuter and/or freight rail services.

Miles Davis
Sophomore, Transportation Systems Engineering Program + Rail Track

Hometown: Atlanta, GA
STIPDG Internship: FMCSA Southern Gateway Enforcement Team
UG ITE President

Dr. Stephanie Ivey
Director of the Southeast Transportation Workforce Center
University of Memphis

Michael Rebick
Assistant VP of Lead Traffic and ITS Engineer
WSP USA

Greater Memphis Apprenticeship Pathway Program

Stephanie Ivey

Southeast Transportation Workforce Center

University of Memphis

Michael Rebick

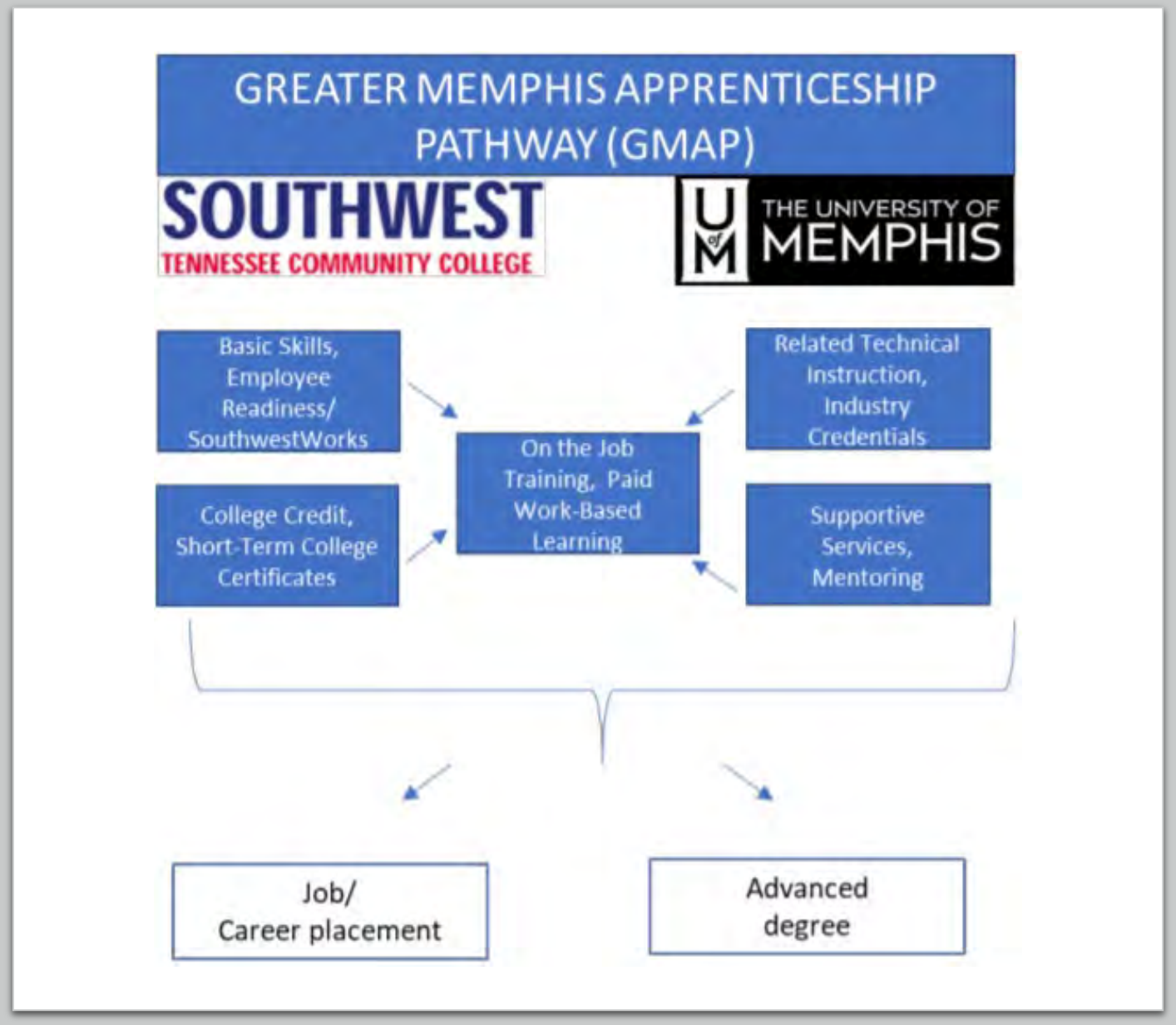
WSP

Brief Background

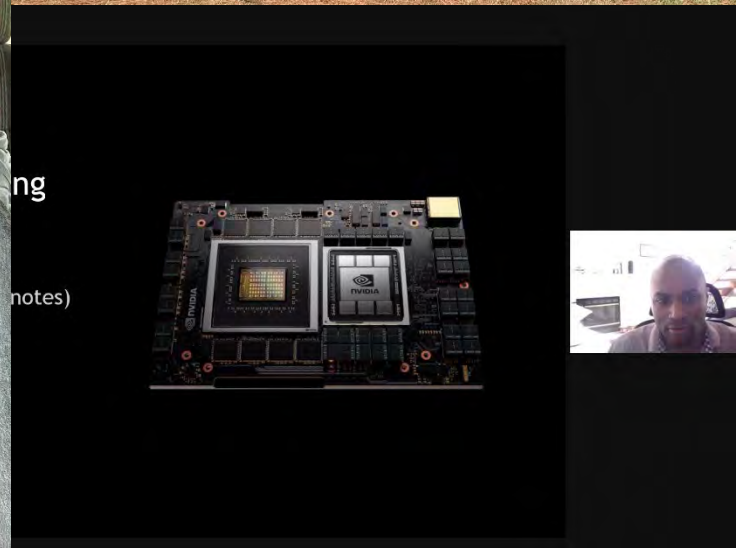
- Industry is seeking students who have competencies beyond the ‘traditional’ set of skills and knowledge
- Students failing to ‘find their fit’
- Need to align college curricular content to the needs of employers and the evolution of technologies
- Support students in developing cross-disciplinary knowledge and skills

Program Overview

- Greater Memphis Apprenticeship Pathway
  - U.S. Department of Labor grant-funded project
  - Led by Southwest Tennessee Community College (SWTCC)
  - Unifying theme across the project is that of transformative technologies



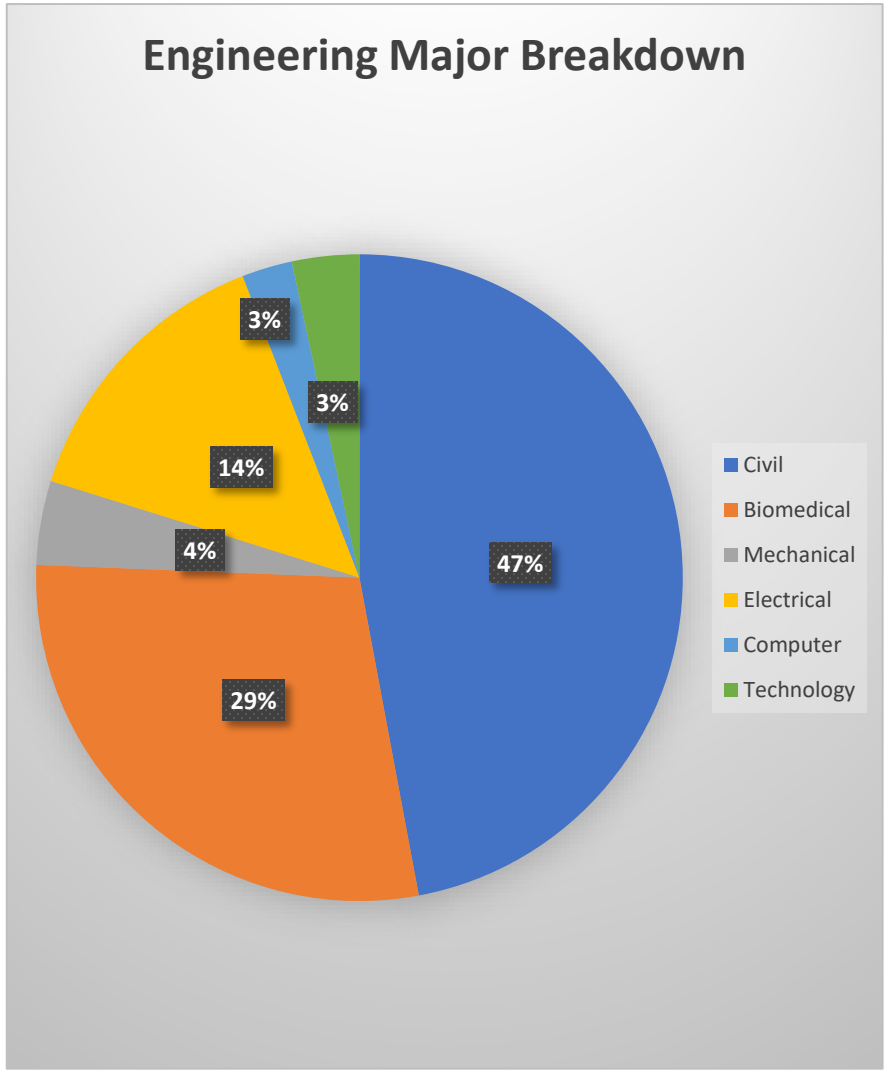
Program Overview



- Transformative Technologies in Engineering Course
  - Interdisciplinary
  - Significant industry engagement
  - Team Innovation Projects – National Operations Center of Excellence Transportation Technology Tournament
- Work-based learning experience
  - Paid work experience
  - Faculty help select apprentices
  - Employers provide mentoring

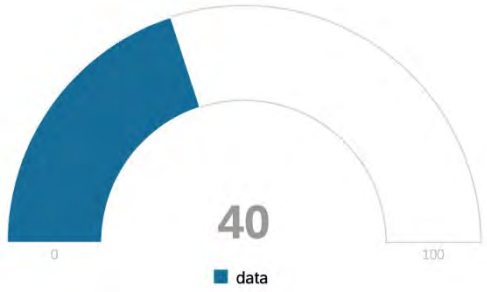
Outcomes 2020-24

- 204 UofM students
  - 152 course completions
  - 49 apprentices
- 10 SWTCC students (participating with UofM)
- 47 Industry Partners

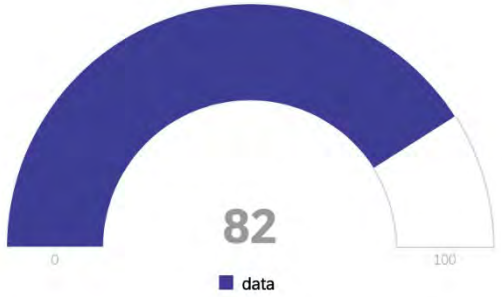


Outcomes 2020-24

Familiarity with Transformative Tech.



Before Course



After Course

Importance of Course Components

Most Important Takeaways

Honestly, the most important takeaway for me wasn't the knowledge or learning the process of doing good research or working in a group; the most important takeaway that I already know I will remember for many years (I mean this genuinely, not just for how good it looks on an end of semester survey) is the speakers who came to talk to the class. ***The way they talked about how many career changes they made and how open my possibilities are for my future was incredible. I put myself in a box, and they help me understand not everything is so black and white and I don't have to limit myself the way I accidentally and naturally choose to.***

93% of students would recommend the course to friends

Definitely, the research aspects of this course as it introduced me to the process of research. Also, the team projects were super helpful with providing me with the opportunity to ***work alongside students of other disciplines.***

Innovative doesn't necessarily mean inventing something new but could be **using existing technologies in an innovative way**.

The biggest takeaway was that the **industry professionals started as regular students like us and got to where they are simply from hard work and determination**.

Industry Perspective

One of the best parts of the Transformative Technologies class was being able to learn about advances in technologies in many different disciplines. Being able to hear from the people who develop these technologies and established professionals was very rewarding. Thanks to this class I was offered an apprenticeship position at WSP. This experience has been one of the most influential of my college career.
- Dylan Vatter, Civil Engineering Major, WSP Apprentice

What did we learn?

- Value of strong partnerships from the beginning (proposal stage!)
- Flexibility is the key (COVID-19)
- Industry interactions are critical for building career identity

Challenges and Opportunities

ACADEMIC VS. INDUSTRY SCHEDULES

MAKING THE CASE FOR AN ‘ATYPICAL’ COURSE

SUSTAINABILITY

Contact Us

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Michael Rebick

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