

ENGINEERING AT S&T

Rotary Club of St. Louis

Dr. Christopher G. Maples, Interim Chancellor

March 7, 2019

MISSOURI
S&T



CELEBRATE ENGINEERING

“Science can amuse
and fascinate us all,
but it is engineering
that changes the
world.”

– Isaac Asimov
American writer
Professor of biochemistry



ASIMOV 2019 PREDICTIONS

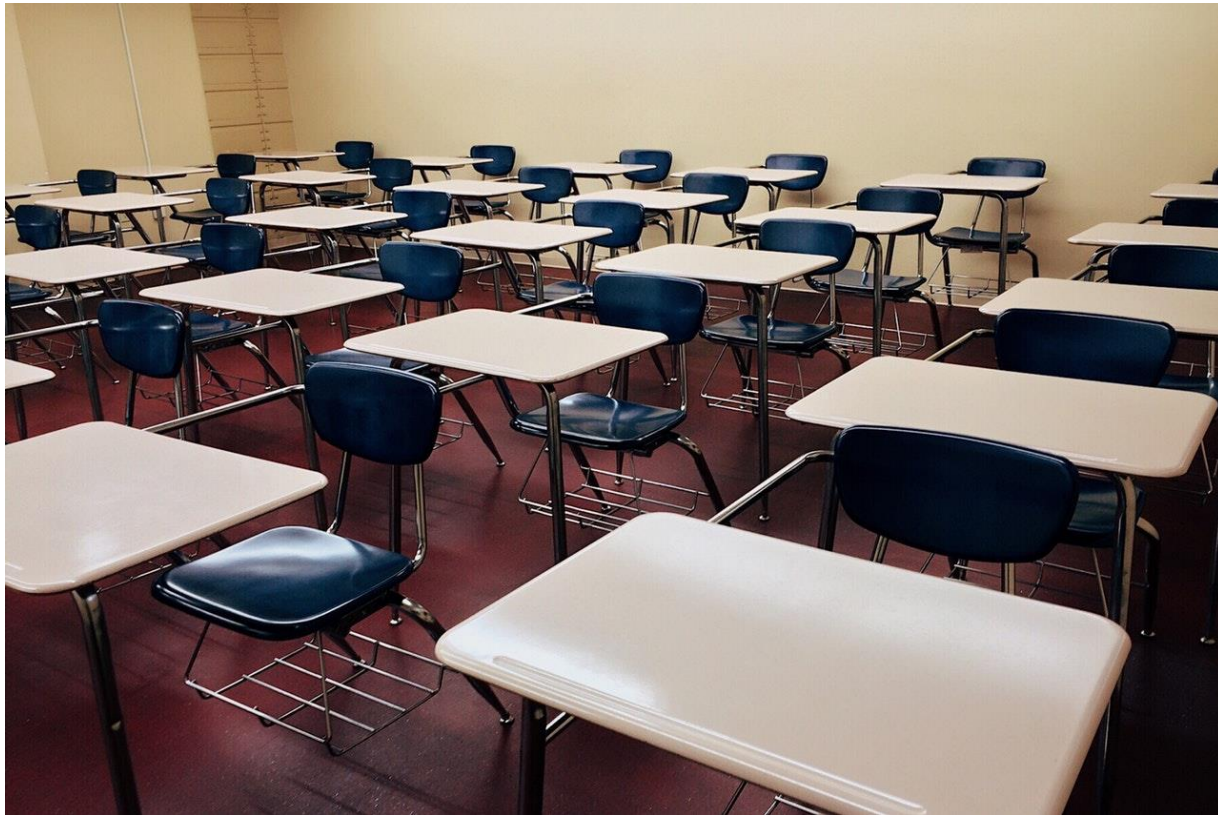
WHAT HE GOT RIGHT

- > “Computerization will undoubtedly continue onward inevitably.”
- > The “mobile computerized object” will “penetrate the home” and make it impossible to live without.
- > Computers will disrupt work habits and replace old jobs with radically different jobs.
- > Robotics will kill “routine clerical and assembly-line jobs.”
- > Society will need to become computer literate.
- > Technology will revolutionize education.

ASIMOV 2019 PREDICTIONS

WHAT HE GOT WRONG

- > Traditional schooling would become outdated as children learn what they need from computers at home.



DISTANCE EDUCATION

- > Enrollment in distance education increased nationally for 14 years straight.
- > 30% of higher education students take at least one distance education course.
- > Missouri S&T offers 18 graduate degree programs, and 60 graduate certificate programs that can be applied toward a master's degree.



T-REX ST. LOUIS

SUPPORT THE NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY (NGA)

- > Missouri S&T will have dedicated space at T-REX to offer distance courses for NGA employees.
- > Wall smashing held Feb. 21 to expand current space.
- > Construction starts in late 2019 for Next NGA West site in St. Louis.



Next NGA West will be located on 97 acres within the historic St. Louis Place neighborhood.

PARTNERSHIP WITH UMSL

ENGINEERING CLASSES IN ST. LOUIS

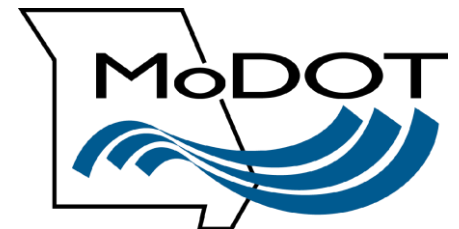
- > We will soon partner with University of Missouri-St. Louis to offer engineering courses in St. Louis.
- > The program will be modeled after successful partnership in Springfield with Missouri State.
- > S&T offers courses in civil engineering, electrical engineering and mechanical engineering in Springfield.

UMSL

WHAT EMPLOYERS WANT

NACE CORE COMPETENCIES FOR CAREER READINESS

- > Critical thinking/problem-solving
- > Oral/written communications
- > Teamwork/collaboration
- > Digital technology
- > Leadership
- > Professionalism/work ethic
- > Career management
- > Global/intercultural fluency



MISSOURI S&T DESIGN TEAMS



Concrete Canoe Design Team celebrates at Little Prairie Lake near Rolla

MISSOURI S&T DESIGN TEAMS



MISSOURI S&T DESIGN TEAMS



MISSOURI S&T DESIGN TEAMS



Human-powered vehicle design team members show race car to children at the St. Louis Science Center during Engineers Week 2019

PROJECT LEAD THE WAY

MISSOURI RANKED 4TH NATIONALLY FOR PLTW

- > Hands-on projects in career pathways in computer science, engineering and biomedical science in PreK-12.
- > More than 860 PLTW programs in 600 Missouri schools. 52 districts offer PLTW in every grade!
- > Missouri S&T is one of only 17 national teacher training partners.



*Summer 2017
PLTW teacher
training session*



FUTURE OF ENGINEERING

WORKFORCE 2030 – MISSOURI CHAMBER FOUNDATION

Challenges

- > Only 42% of Missouri businesses report satisfaction with the state's availability of skilled workers.
- > Most 45-54 year olds will retire in next 20 years.
- > U.S. predicts 4.4% population growth among 25-44 year olds over the next 10 years, Missouri 25-44 year olds will only grow at a 2.5% rate.
- > About 2.6 million adults in Missouri don't have post-secondary degrees.

FUTURE OF ENGINEERING

WORKFORCE 2030 – MISSOURI CHAMBER FOUNDATION

Opportunities

- > In the last 10 years, computer system design and service jobs have increased 75% in Missouri.
- > Jobs in technical and scientific management have grown by 78% in Missouri.

FUTURE OF ENGINEERING

STEM JOBS GROWING IN MISSOURI

Missouri Economic Development

- > From 2014-2024, total STEM jobs in the state will increase to over 390,000 – an increase of 40,000 jobs.
- > STEM makes up 5.3% of Missouri employment.
- > The Average wage for STEM-related jobs is \$73,490.
- > STEM jobs earn 80% more than the Missouri average.

FUTURE OF ENGINEERING

MISSOURI STEM MAJORS INCREASING

- > In FY 2018, University of Missouri awarded 18,455 degrees and 5,760 or 31% were from STEM programs.
- > Number of STEM grads increased almost 20% in the last five years from 4,630 to 5,760.

Missouri S&T in FY 2018

- > Graduated 2,662 students and 2,464 or almost 93% were STEM majors.
- > Awarded more than 2,000 degrees in engineering and engineering technologies.

SUCCESSFUL GRADUATES

Return on Investment

\$753,000 20-year net ROI

6th in the nation for public & private

1st in Missouri public colleges

2018 PayScale College ROI Report

Average
undergraduate
starting salary:
\$63,892

Average graduate
starting salary:
\$72,622

2018 Fall
Career Fair:
331 employers
3,673 students

*S&T's Career Opportunities and
Employer Relations (COER)*



CLAYCO ACML

CLAYCO ADVANCED CONSTRUCTION AND MATERIALS LABORATORY

- > Will add 16,000 square feet of research space
- > Addition to High-bay Structures Laboratory in Butler-Carlton Civil Engineering Hall
- > \$6.5 million raised
- > Broke ground (poured cornerstone) Oct. 12, 2018



STUDENT REC CENTER EXPANSION

- > \$4 million expansion project, added 10,000+ square feet, more than doubled number of fitness machines
- > Funded by student fees, voted on by students
- > Opening May 2019



DESIGN CENTER EXPANSION

- > Double the space of the Kummer Student Design Center from 4,000 to 8,000 square feet
- > Groundbreaking in April, completion in December 2019



THANK YOU!



Homecoming 2020 will kick off S&T's
celebration of 150 years

MISSOURI
S&T