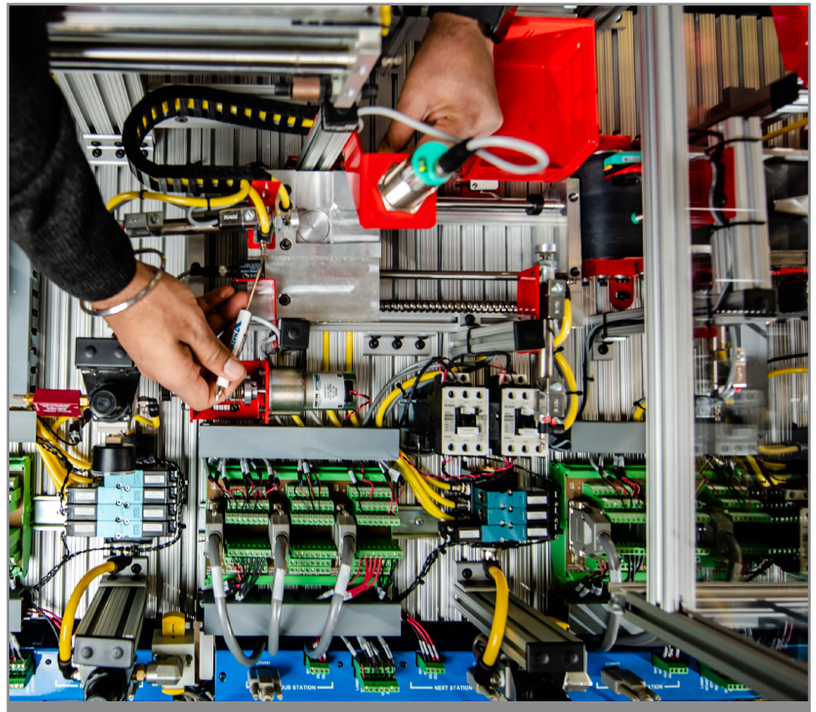
Michigan Technological University

MICHIGAN TECHNOLOGICAL UNIVERSITY

FY2023 Five-Year Capital Outlay Plan


NASDAQ
-0.8%
-2.6%
4,288.39
-34.92
$37.50
-1.00
NASDAQ
CLOSING BELL



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MISSION

Creating Solutions

The mission of Michigan Technological University is to create solutions for society's challenges by delivering action-based undergraduate and graduate education, discovering new knowledge through research, and launching new technologies through innovation.

Vision

Michigan Tech is a globally recognized technological university that educates students, advances knowledge, and innovates to improve the quality of life—and to promote mutual respect and equity—for all people within the state, the nation, and the global community.

93.4%

93.4 percent five-year average job placement rate for undergraduates

8th

No. 8 in the nation for public colleges that pay off the most (CNBC)

280k

280,000 square feet of research labs on campus

Tech Forward Initiatives

"People from across the University, members of the community, and alumni have all contributed and provided their insights regarding the future of Michigan Tech. We listened carefully to all the different voices and are excited about how all of the conversations converged. We now have a framework that will help us to focus our efforts as we begin to plan for the future."

Jackie Huntoon
Provost and Senior Vice President for Academic Affairs

Michigan Tech's Ongoing Institutional Initiatives:

- Health and Quality of Life
- Data Revolution and Sensing
- Policy, Ethics, and Culture
- Education for the 21st Century
- Diversity and Inclusion
- Autonomous and Intelligent Systems
- Natural Resources, Water, and Energy
- Sustainability and Resilience
- Advanced Materials and Manufacturing

Tech Forward Initiative: Health and Quality of Life

Vibrant Community

We learn more every day about the impact that stress, eating habits, and routine functions like sitting and sleeping have on our long-term health. Wellness is multifaceted and often a community endeavor. As a University, we're examining the ways in which humans can build vibrant communities of well-being while simultaneously creating technology to improve the human condition.

A strong community increases an individual's quality of life, and healthy people foster a nourishing community. Research shows that students do best—both in their studies and later in their careers—when they feel a sense of belonging on their college campuses. Faculty and staff thrive in their positions when they feel supported and have a sense of purpose.

Integrating well-being into our curriculum teaches healthy habits and creates a feeling of connection in students. Initiatives that provide mentoring and professional development for faculty and staff keep them excited about their careers and intellectual endeavors.

Many of those endeavors involve research to improve the human condition. National Institutes of Health (NIH) funding for health research on campus has tripled in just the last five years. Researchers are exploring diverse solutions for some of the greatest challenges to health and well-being, including diabetes, Alzheimer's disease, lack of sleep, and anxiety. And unlike many other universities, our health research labs involve students—undergraduate and graduate—in meaningful ways.

For students, exploring how to do research builds belonging and marketable skills. For faculty and staff, research that matters in people's daily lives is filled with purpose. **For everyone, the goal is shared enthusiasm, rigor, and well-being.**

"There's a big role communities can play in the health of their residents. Chronic diseases don't occur in isolation, but rather are closely affiliated with an individual's culture, behavior, and environment."

Guy Hembroff
Director of the Health Informatics Graduate Program

Tech Forward Initiative: Data Revolution and Sensing

The Future of Business and Computing

"Digital Transformation is revolutionizing every industry, and every successful company is scrounging to attract a high-quality tech workforce. The College of Computing at Michigan Tech was specifically created to train the workforce of tomorrow that Michigan needs today."

Dennis Livesay
Dave House Dean of Computing

Computing and computer science are no longer subfields of engineering, math, or science; they're suffused in nearly every academic discipline. In particular, digital technology has reshaped business competition and the fundamental business disciplines themselves.

Computational skills are a job-market requirement. It's estimated that more than 80 percent of middle-skill jobs—those that require more education or training than a high school diploma—require digital skills. And digital literacy is a minimum standard in nearly every business occupation.

In recognition of cyber technology's role in Michigan's economy, **Michigan Tech launched a new College of Computing** on July 1, 2019—the first and only college of its kind in the state of Michigan. The College of Computing and the College of Business, together with Michigan Tech's entire academic enterprise, intend to meet the technological, economic, and social needs of the 21st century—and answer industry demand for talent in AI, business analytics, software engineering, machine learning, data science, and cybersecurity.

Through the Center for Convergence and Innovation, Michigan Tech will prepare students for lifelong prosperity and employability through relevant, contemporary academic programs steeped in digital technologies—supporting and driving cutting-edge, market-centered research in computing fields. The Center for Convergence and Innovation will transform the University into an academic institution that reflects the technological, economic, and social realities of the Fourth Industrial Revolution.

Tech Forward Initiative: Policy, Ethics, and Culture

The Institute for Policy, Ethics, and Culture

Algorithmic culture. Medicine and biotechnology. Autonomous and intelligent systems. Surveillance and privacy. The technological changes and disruptive forces of the 21st century are urgent, complex, and vast. To explore the policy implications, ethical considerations, and cultural significance of life in a connected world, Michigan Tech launched a new Institute for Policy, Ethics, and Culture (IPEC) in fall 2019.

"An essential, unique feature of IPEC is its flexibility–its ability to both proactively identify emerging issues and to respond to them quickly with an interdisciplinary focus."

Jennifer Daryl Slack
IPEC Director and Distinguished Professor of Communication and Cultural Studies

"Technological advances are necessary, but not sufficient to address global challenges related to human well-being, ecosystem health, and a changing climate. IPEC will foster innovative and forward-thinking policies, grounded in science and cultural insight. A primary goal of IPEC is to guide the ethical development and deployment of technology toward the 'future we want.'"

Sarah Green
Professor of Chemistry

"Technology is a new culture, it's not just a backdrop. People tend to take extreme stances–they celebrate technology or they criticize it. But the best path forward is a participatory stance, one where people–not algorithms–make choices about when to use technology, when to unplug, and what data is or isn't shared."

Soonkwan Hong
Associate Professor of Marketing

Tech Forward Initiative: Education for the 21st Century

We live in a time where change is constant, rapid, and often disruptive. **Technologies have evolved** to take on our more mundane tasks; artificial intelligence and automation continue to enter the mainstream, displacing humans in fields for which students are currently preparing while simultaneously creating jobs few are trained for.

To prepare the student of today to address the needs of society at a level that machines cannot, it's imperative to consider the whole student—not only their development as highly skillful and knowledgeable participants in their chosen fields, but also their growth as individuals with the competencies to manage uncertainty and change.

With this in mind, the Pavlis Honors College identified **nine key abilities** that every student in the College is encouraged to cultivate through critical reflection, design thinking, and interdisciplinary collaboration:

- Value diverse perspectives
- Engage in mentorship
- Communicate empathetically
- Welcome challenge
- Learn deeply
- Embrace ambiguity
- Balance con idence and humility
- Know yourself
- Act with purpose

Pavlis students intertwine their major with a series of experiences they design themselves and build on their skills, interests, and values. Honors College staff leverage Michigan Tech's great network of faculty, staff, and alumni to build partnerships and create opportunities for students. "Students are excited about their work with the Honors College, and projected enrollments in the Honors Pathway program are anticipated to reach an all-time high for fall 2021," said Provost Jackie Huntoon.

Jean Kampe is leading a working group to implement the nine honors abilities across the Michigan Tech campus and curricula. The goal: Make sure every Michigan Tech graduate is an agile worker—self-aware, resilient, and confident. A global citizen. A lifelong learner.

Tech Forward Initiative: Diversity and Inclusion

We hope to change the face of STEM.

A STEM degree has its advantages. A recent study by the Pew Research Center indicated that workers in STEM fields enjoy a pay advantage over workers in non-STEM fields, and that STEM training in college is associated with higher earnings.

That same report, however, showed that in computer-related jobs—the highest-paying and fastest-growing STEM sector—the number of women was decreasing. The Pew report also revealed that Black and Hispanic tech workers are underrepresented across all sectors of the STEM workforce, except for health care practitioners and technicians (where they still accounted for only 11 percent of the workforce).

Unfortunately, the Pew report was not shocking; the lack of diversity in STEM fields is well known and well documented. Michigan Tech—widely referred to as a STEM school—faces the same challenge. In 2021, our incoming undergraduate class was the most diverse in University history, yet women account for less than 30 percent of our student body, and multicultural students account for roughly 10 percent of undergraduate enrollment.

Michigan Tech recognizes these challenges and will do our part. Our objective as an institution is to create and maintain learning, working, and living environments where students, faculty, and staff from diverse backgrounds experience equity, inclusion, and a sense of belonging.
To reach this goal, we are:

1. Committing as an institution to the sustained support of diversity, equity, and inclusion
2. Implementing a cross-campus education initiative for all members of the Michigan Tech community
3. Increasing the diversity of faculty, staff, and the student body through targeted and well-supported recruitment strategies
4. Collaborating and supporting retention programs and initiatives designed to educate and support a diverse campus community

In working toward these goals, **we hope to change the face of STEM.**

Tech Forward Initiative: Autonomous and Intelligent Systems

Beyond the traffic signs, outside the yellow lines, autonomy at the ends of the Earth—**Michigan Tech excels in unstructured environments.**

Perhaps no products of the 21st century are more relevant to Michigan and the Great Lakes region than autonomous vehicles and vessels.

Ford Motor Company recently pledged to have a fully functional self-driving car on the road by 2021, and at a 2017 Investor Day presentation, General Motors made it clear it was going all-in on autonomous vehicles. And autonomy isn't limited to land alone. Out on the water at Michigan Tech's Marine Autonomy Research Site (MARS), industry, governments, and foundations are investing in autonomous vessel research to improve maritime travel and transport. **MARS is the first freshwater testbed of its kind in the world.**

Innovations in autonomy for vehicles and vessels are a harbinger of disruption across a wide range of industries, including many if not most of the industries in Michigan. They're also a source of concern for the average citizen—people are rightly concerned about the ethical and social impacts of automation and the construction of intelligent systems.

For Michigan Tech researchers, **engineering and perfecting these systems** in dirty and dangerous environments—like the Upper Peninsula's extreme weather conditions and off-road settings—is the right way to explore and demonstrate to the public the capabilities of automated and intelligent systems in a safe context.

As a key research area that spans civil engineering, mechanical engineering, electrical engineering, computer science, cognitive science, and many more, mobility needs more than traditional paths to move the field forward. Whether underwater or on the road, **Michigan Tech takes autonomy to the ends of the Earth.**

Tech Forward Initiative: Natural Resources, Water, and Energy

Finite resources and a changing climate demand that humans reconfigure their relationship with the environment. Through innovative technocentric education, transdisciplinary research, and improvements to our local environments, we can study and solve grand challenges in natural resources, water, and energy.

At most colleges and universities, the academic model is organized into disciplines. Each discipline provides its own perspectives, and each perspective has its own strengths and limitations. When these different perspectives are woven together, **our understanding of large challenges is much more complete.**

"New sensors, new platforms seem to come online several times a year—so how do we take advantage of that rapid innovation and hardware and make them available on a practical basis? Somebody has to do the testing to make sure the tech collects what's needed, and that's part of the niche we fill."

Colin Brooks
Research Scientist, Michigan Tech Research Institute

One of the most effective ways to bring vastly different disciplines together is to assemble a team to solve a pressing problem. The challenge provides the motivation for each expert to learn the languages of the other fields, to work to truly understand the approach and to collaborate on strategies. In the same vein, complex, local-to-global problems of managing natural resources, including energy and water, are best solved through the interaction of diverse and broad disciplines.

For example, a transdisciplinary team at Michigan Tech is investigating the feasibility of converting abandoned mines into valuable energy storage. Michigan Tech researchers and students in engineering, industrial archaeology, and energy policy have partnered with local communities to transform what many see as liabilities into pumped hydro energy storage facilities. In Michigan's Upper Peninsula, which is home to countless abandoned mines and some of the nation's highest electricity rates, the project could profoundly impact the livelihood of many rural communities.

At Michigan Tech, our innovative teams work across boundaries, scales, and disciplines to investigate and solve multifaceted issues in natural resources, water, and energy.

Tech Forward Initiative: Sustainability and Resilience

Sustainability and Resilience are powerful and transformative concepts with the potential to change the way we educate students, conduct research, and interact with our natural and built environment. Both sustainability and resilience are essential concepts and practices for students and the University, as we aim to be at the cutting edge of innovation and education for the 21st century and prepare to respond and thrive through future challenges.

What sets Michigan Tech apart from other institutions is the draw of our remote location with the forests and water-rich environment of Upper Michigan, the history and identity as Ojibwa homelands, and the diverse relationships connecting humans and the natural world. This provides a unique and elevated opportunity to challenge students with learning goals that incorporate social responsibility, sustainable development and environmental policy, and the latest available technologies.

"The challenges of Michigan Tech are tied to the challenges of the world. We are excited to provide resources and engagement opportunities for students, faculty, and staff to contribute to our goal of being more sustainable and adaptable to an uncertain future."

Alan Turnquist
Director of Sustainability and Resilience

Tech Forward Initiative: Advanced Materials and Manufacturing

Reduce. Reuse. Remake. Recover. Renew.

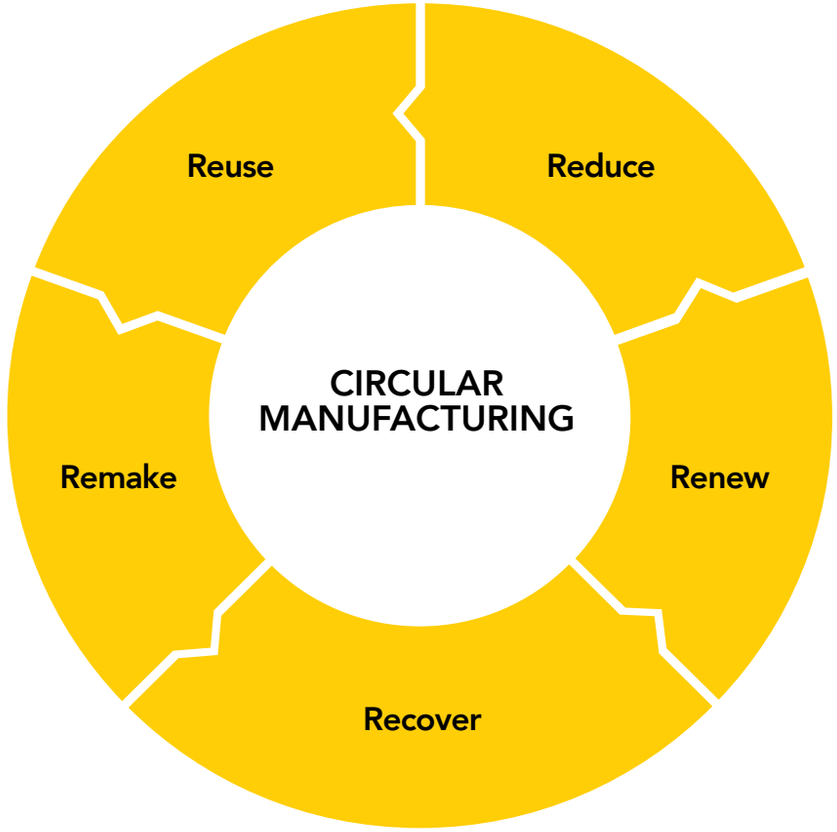
These strategies—the five R's—are central to a circular economy, one in which the life of any good or material bought, sold, used, and discarded is extended as far as possible to curb extraction, pollution, and waste.

Circular manufacturing is the philosophy and practice of extending the useful life of materials and products through design for disassembly and reuse. It's a vital tool in addressing environmental crises like biodiversity loss, resource scarcity, and pollution.

Currently, only 8.6 percent of the global economy is circular, but an estimated 30 percent of large corporations have a circular strategy, and over 75 percent plan to adopt targets that will make their products, processes, or business models more circular in the next few years. And manufacturers around the world are building a business case for a circular strategy.

In carrying out our charge to promote the welfare of Michigan's industries, **Michigan Tech stands among global leaders** in experimental and digital design of advanced materials, like the composites materials at the heart of our work for the NASA Space Technologies Research Institute. We are renowned for our capabilities in microfabrication and the manufacture of metal alloys, concrete, composite materials, and wood products.

As the world moves toward a global economy, there is much room for innovation in materials and manufacturing technologies that support a circular strategy, including the use of data-driven and machine-learning approaches. And **Michigan Tech is ready to lead the charge.**



ENROLLMENT

Growing Michigan's Workforce

This year's enrollment of underrepresented domestic minority students represents more than **10 percent** of the undergraduate student body.

The average high school GPA of the entering class is **3.8.**

There are **2,063** women enrolled at Michigan Tech this fall, representing **29.44 percent** of the student body.

7,006

The number of students enrolled at Michigan Tech during fall 2021

2,063

The number of women enrolled at Michigan Tech

#1

Ranking among public universities nationwide for students who said they made the right choice

**Wall Street Journal/Times*

STAFFING

Michigan Tech Faculty Talent

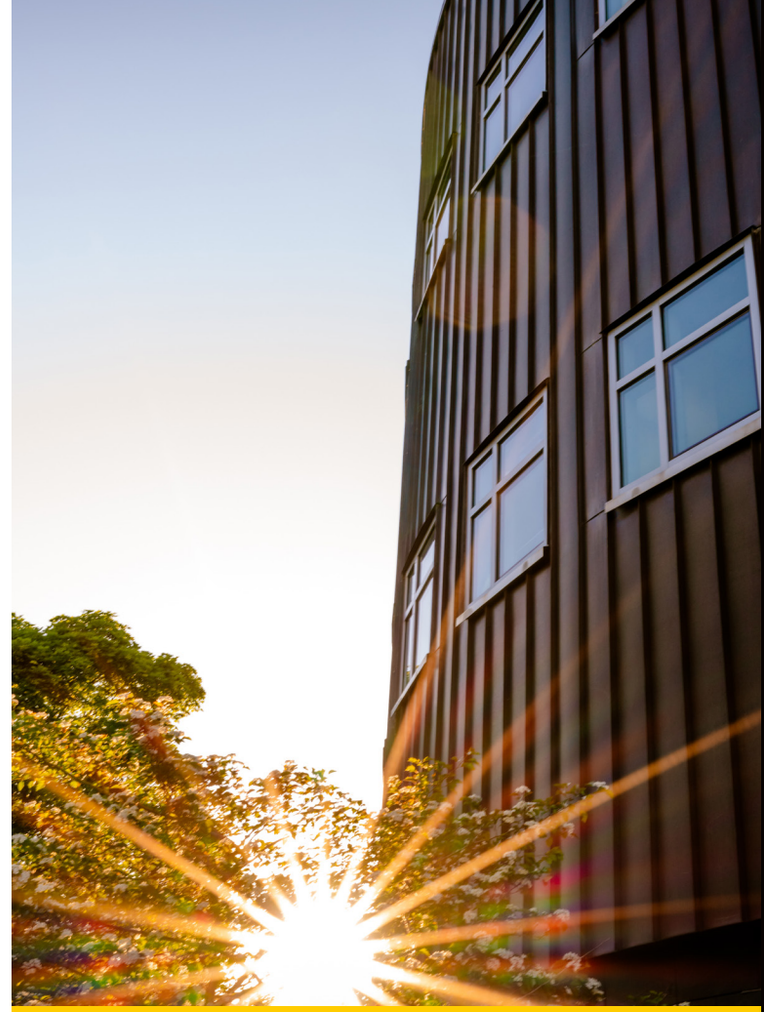
Ensuring the State of Michigan is a National Leader in Digital Transformation

According to the Michigan Bureau of Labor, the state expects a 7.5 percent increase in workforce demand for business and financial operations, computer and mathematical operations, and engineering—or roughly 11,000 new jobs over the next seven years. Michigan Tech's College of Computing alone saw a 10 percent year-over-year increase in undergraduate enrollment for fall 2021 and is poised to double in size by the end of the decade.

Michigan Tech's College of Business (COB) is already addressing the digital transformation's impact on the needs of businesses with curriculum offerings that include courses in accounting data analytics, marketing analytics, fintech, and commercialization of technology. The COB has intentionally built a tech-savvy business faculty through strategic hiring of faculty with STEM degrees and tech-industry experience. COB faculty focus on technological innovations, commercialization, and entrepreneurship.

The College of Computing (CC) at Michigan Tech is Michigan's first and only college of computing. Michigan Tech reaffirmed its role as a leader in promoting economic prosperity and preparing the workforce of the future by investing in the formation of this college—which remains unique in the state. CC faculty are active in collaborative cross-disciplinary research projects, while also providing learning experiences in computing education, cyber-physical systems, cybersecurity, data sciences, human-centered computing, and scalable architectures and systems.

The intentional mixing of faculty and educational programming in the new Center for Convergence and Innovation (CCI) will remove traditional academic silos and allow for cutting-edge preparation of students for success in Michigan's high-tech economic sectors. The CCI will significantly improve Michigan's ability to recruit and retain the talent needed to position itself as a leader throughout the 21st century.



The Center for Convergence and Innovation (CCI)—Phase I project will promote collaborations among researchers and leaders in business and computing that will support economic development throughout all segments of Michigan's industries.

Michigan Tech Faculty Talent

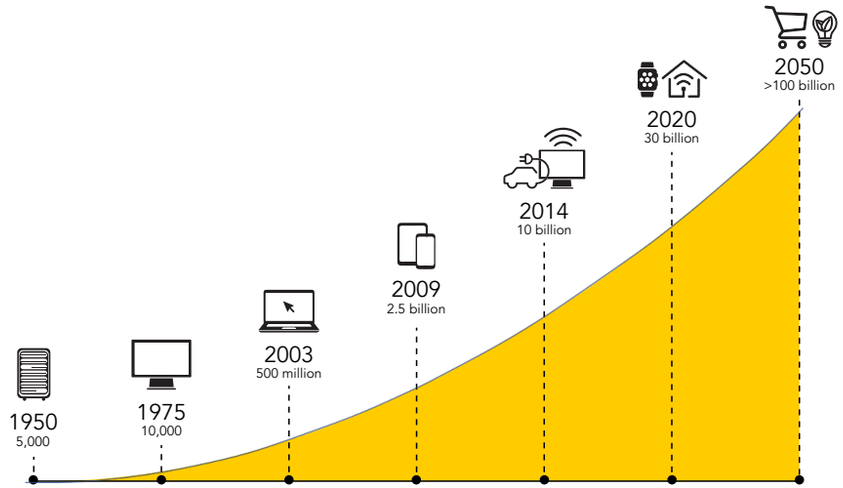
Providing Talent and Expertise for the Digital Age

The planned **Center for Convergence and Innovation** will provide a place to co-locate our existing business, data science, and computing programs to spur new degree programs, entrepreneurial projects, outreach to businesses and communities, increased industry and government funding for research, and the development of a highly agile workforce prepared to implement digital transformation solutions throughout Michigan. Students and employees from the College of Business and College of Computing will be commingled to promote cross-disciplinary collaboration, innovation, and entrepreneurship.

According to many experts, including Klaus Schwab, founder of the World Economic Forum, the transition from the Third to the Fourth Industrial Revolution is being marked by integration of digital technologies into all aspects of physical and biological systems. Companies will no longer compete on product innovation alone; they will compete on innovations of their fundamental business processes.

Michigan Tech is preparing students to be leaders in tomorrow's world.

To remain competitive in an increasingly fast-paced world in which technological innovations proceed at hair-raising speeds, businesses, industries, and governmental agencies must be nimble, agile, and sufficiently aware of recent and upcoming developments to be able to maintain financial viability—as well as social currency. One thing we can be sure of is that the future will bring rapid and continual change. Michigan Tech is preparing students to be leaders in tomorrow's world, and our computing and business related research is critical to US economic competitiveness and the sustained growth of local economies.



Expected adoption of IoT (Internet of Things) devices.

Source: Modified from Capra M, Peloso R, Masera G, Ruo Roch M, Martina M. Edge Computing: A Survey On the Hardware Requirements in the Internet of Things World. Future Internet. 2019; 11(4):100. https://doi.org/10.3390/fi11040100

Partnerships and Collaborations Across Michigan

Addressing Local, Regional, and State Needs

Michigan Tech faculty who will be located in the Center for Convergence and Innovation have a strong history of building educational programs and partnerships across Michigan.

College of Business (COB) faculty are currently completing an economic impact analysis of the Eagle Mine in the Upper Peninsula of Michigan. Lundin Mining, the operator of the only primary nickel mine in the US, sought out the unique combination of COB faculty expertise in economics, mining, econometrics, data analytics, and information systems to establish best practices in mining in relation to regional economic health.

COB faculty have and continue to actively partner with the Michigan Small Business Development Center, the Michigan Tech SmartZone, the Michigan Economic Development Corporation - STEM Forward, and the FinnZone to address Michigan's economic needs by providing expertise, mentorship and collaborative support for new and established businesses.

The College of Computing (CC) is similarly focused on advancing Michigan. Multiple computing faculty members are partnering with industry and government organizations alike on research problems that will directly advance Michigan's competitiveness, including improving health outcomes, disaster resilience, autonomy, and automation. Our partners include hospital systems, the automotive industry, and everything in between.

CC faculty are also focused on ensuring that all Michiganders have opportunities within computing and tech. One example is Copper Country Coders, an educational program delivered by MTU students with assistance from computer science faculty. Copper Country Coders introduces students in middle and high school to the world of computer science and programming. Similarly, we are currently partnering with the Detroit Hispanic Development Corporation (DHDC) to deliver our first programming course to students from inner city Detroit. Partnering with DHDC and Ford Motor Company, we synchronously deliver the curriculum remotely to these high school students, with close mentorship provided in person at DHDC.

The COB also provides experiential education to local high school students by bringing real-world investment concepts into schools and classrooms through the **Husky Investment Tournament** for high schools.

How the Husky Investment Tournament Works:

3 or 4

students per term from grades 9-12

$1M

in virtual US dollars to invest

$1,000

to the winning team– with Michigan Tech scholarship offers

Partnerships and Collaborations Across Michigan

Addressing Local, Regional, and State Needs

The College of Computing is active in preparing the future workforce for leadership in multiple areas related to digital transformation, including cybersecurity.

Current initiatives led by a single faculty member, **Yu Cai,** include RedTeam, GenCyber, and CyberCorps: Scholarship for Service.

RedTeam is a community and resource for students wishing to learn more about information security. RedTeam students interested in cybersecurity competitions compete in the National Cyber League, which can be thought of as the cybersecurity collegiate national championships. Michigan Tech's team placed third out of 922 teams in spring 2021.

GenCyber provides summer cybersecurity camp experiences for students and teachers at the K-12 level. The program helps students understand safe online behavior and fundamental cybersecurity concepts, increases their interest in cybersecurity careers, and improves teachers' pedagogical methods for delivering cybersecurity content.

CyberCorps is a national program designed to recruit and train the next generation of information technology professionals, industrial control system security experts, and security managers to meet the needs of the cybersecurity mission for federal, state, local, and tribal governments. The program provides two- to three-year scholarships for cybersecurity undergraduate and graduate education.

Prominent Faculty

This document cannot be sufficiently long or detailed enough to adequately describe of the work of all the faculty and students who will benefit from the Center for Convergence and Innovation. Instead, we focus on the work of a select group of Michigan Tech faculty who are leading researchers and educators.

Accounting information systems professor **Jun Dai** studies the application of new technologies (such as blockchain and data analytics) to the auditing profession.

Dai's forward-looking approach has resulted in enormous positive attention from her peers. Dai received the 2021 American Accounting Association's Notable Contributions to Accounting Literature Award for her article "Toward Blockchain-Based Accounting and Assurance." In this article, Dai explores how blockchain technology will reengineer the existing accounting and auditing procedures to make them more transparent, intelligent, and automated.

Extensions of her work to supply chain, quality control, and finance are readily apparent. Her research has implications for all sectors of Michigan's economy.

Meet JUN DAI, accounting information systems faculty member in the College of Business.

Prominent Faculty

Meet TIMOTHY HAVENS, William and Gloria Jackson Endowed Professor of Computer Systems in the College of Computing.

Timothy Havens is the William and Gloria Jackson Endowed Professor of Computer Systems. He also serves as the associate dean for research in the College of Computing and as the director of Michigan Tech's Institute of Computing and Cybersystems (ICC), which provides a platform for innovative research through support, facilitation, and collaboration within and outside of Michigan Tech.

The ICC's 55 members—in six research centers—represent more than 20 academic disciplines at Michigan Tech. Member scientists are collaborating to conduct impactful research, make valuable contributions in the field of computing, and solve problems of critical national importance.

In January 2022, Havens will become the director of Michigan Tech's Great Lakes Research Center, which houses the supercomputer named Superior, and supports the research and outreach efforts of faculty, staff, and students from across campus.

Havens' research and teaching interests focus on pattern recognition and machine learning, signal and image processing, sensor and data fusion, heterogeneous data mining, and explosive hazard detection. He, his collaborators, and his students are creating the tools that will make Michigan's industries successful throughout the 21st century.

Prominent Faculty

Daniel Fuhrmann is the Dave House Endowed Professor of Computer Engineering. He also serves as the chair of the Department of Applied Computing.

In 2017-18, Fuhrmann led the University-wide Computing and Information Sciences Working Group that ultimately recommended the formation of a new academic unit devoted to computing.

Following that effort, as part of the University's Tech Forward initiative, Fuhrmann led the Data Revolution and Sensing Task Force, which in spring 2019 developed a vision and implementation plan for the new College of Computing.

Michigan Tech's newest college enrolled its first students in fall 2019 and boasts eight undergraduate degree programs ranging from cybersecurity to mechatronics.

Fuhrmann's expertise is in statistical signal and image processing, with applications in radar systems, sonar systems, medical imaging, and communications. Fuhrmann is an IEEE fellow.

Meet **DANIEL FUHRMANN,** Dave House Professor of Computer Engineering in the College of Computing.

Funding for Research

Investing in Michigan Tech Faculty and Students

University-supported (aka internal) research funding is a critical stepping stone that provides the seed funding needed by new researchers who must establish themselves as competitors for external research funding. In 1986, Michigan Tech made a strategic move to establish a peer-reviewed Research Excellence Fund (REF) grant program. These funds are available through the following Michigan Tech REF Programs:

REF Commercialization Milestone Grants provide resources to support the initial steps toward commercialization of technologies. These grants are intended to fund activities like testing and validation of the market need, development of technology prototypes, or preliminary validation of performance in real-world sectors.

REF Infrastructure Enhancement Grants provide departments, colleges, and centers/institutes with resources to develop the infrastructure necessary to administer sponsored research programs and ensure excellence in graduate student education. Funded projects result in acquisition of equipment, enhancement of laboratory facilities, or professional development for administrative support.

Shared Facility Grants provide critical resources for University-wide interdisciplinary and guest/partner research activities. Funds are used to ensure researchers have access to shared research spaces and state-of-the-art equipment. Michigan Tech's shared facilities are an invaluable asset.

INSTRUCTIONAL PROGRAMMING

Digital Transformation Education Critical to Industry

Preparing Talent that Matters for Michigan's Economy

Historically, Michigan has been a high-income but low-education state, where the job market was largely dependent on durable goods manufacturing. Today, resources such as talent, innovation, and technological advancement are key factors in the economic development, vitality, and competitiveness of the state of Michigan. The Business Leaders for Michigan's publication, Business Leaders' Insights: Michigan's Talent Forecast April 2016 report states:

> "The goal of helping Michigan become a **'Top Ten'** state will be impacted by Michigan's ability to supply talent with the right education, training, and skills to fill high-paying, high-demand jobs."

This perspective is shared by others. For example, in December 2015, the Michigan Postsecondary Credential Attainment Workgroup, a coalition of business, education, and political leaders in our state, published an action plan to increase the qualifications of Michigan's workforce.

The work of that group laid the groundwork for Governor Gretchen Whitmer's call for 60 percent of Michigan residents to earn a postsecondary certificate or degree by the year 2030, a goal which is now referred to as "Sixty by 30."

Digital Transformation Education Critical to Industry

Preparing Talent that Matters for Michigan's Economy

> As predicted by the 2007 Rising Above the Gathering Storm report (published by the National Academy of Science, National Academy of Engineering, and Institute of Medicine), the link between education and economic well-being has gone from being a suspicious notion, to being a well-documented fact.

By 2008, the storm had not just gathered, it had hit with full force. Michigan, with its low training and education attainment rates, was ill-prepared to deal with storm-force economic winds. The shortage of trained and educated workers dragged down the economy and launched a war for talent among companies that continues today. Whereas at one time businesses chased low wages across state borders and around the world, they were increasingly forced to chase talented employees—which were, as predicted, in short supply—particularly in Michigan. This was in large part due to the fact that Michigan residents were not sufficiently prepared to be part of the high-tech workforce.

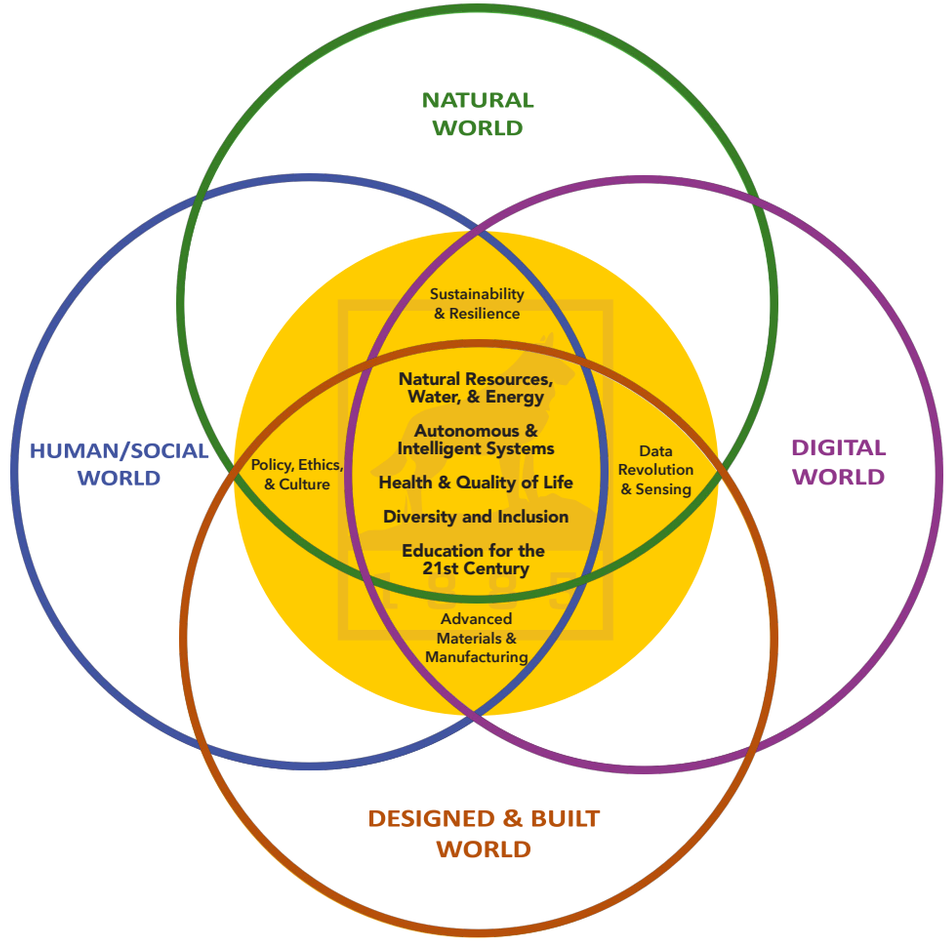
The COVID-19 pandemic disproportionately impacted unskilled workers in Michigan. As the disruption hit Michigan, the unemployment rate rose from 4.3 percent to 24 percent between March and April. In August 2020, it remained at 8.7 percent, approximately twice the pre-COVID rate according to the US Bureau of Labor Statistics.

In her 2021 Mackinac Policy Conference Keynote Address, Governor Whitmer reaffirmed Michigan's commitment to growing the middle class, supporting small businesses, and investing in communities. Both the Gathering Storm report and our state's leaders are clear that individuals with at least some college education are going to be more employable in Michigan's increasingly high-tech economy.

Digital Transformation Education Critical to Industry

Center for Convergence and Innovation Embodies Michigan Tech's Vision for the Future

Michigan Tech's reputation and track record are built on 135 years of vision, hard work, and commitment to the local community, the state, and the nation. To maintain our high-achieving status among STEM-dominant research institutions, Michigan Tech constantly pursues strategic initiatives designed to respond to changing state/national/global needs while staying true to who we are as a University. Strategic efforts are developed through collaborative University-wide conversations, such as Tech Forward, which frequently include external stakeholders. Germane to our Five-Year Capital Outlay Plan are several programmatic, hiring, and partnership initiatives that emerged from the Tech Forward campuswide strategic visioning process during the 2018-19 academic year. The Center for Convergence and Innovation will be the center of the MTU digital world and will be a key link in driving the Tech Forward intiatives forward.



Tech Forward Process and Strategic Vision Priorities

DEVELOP
solutions to natural resource, water, and energy problems.

BUILD
innovative autonomous and intelligent systems.

CREATE
technological solutions to enhance human health and quality of life.

PREPARE
culturally receptive leaders for a diverse world.

REDEFINE
education for the next generation.

Digital Transformation Education Critical to Industry

Redefining Education for the Next Generation

Wayne Gersie
Vice President for Diversity and Inclusion

Enhancing diversity and inclusion for all at Michigan Tech was one of the nine initiatives that emerged from the Tech Forward process. As part of that initiative, the University hired our first vice president for diversity and inclusion in the fall of 2020. Wayne Gersie has been recognized for his service with multiple awards and has provided service to committees, panels, and as a keynote speaker to groups such as the National Association for Multicultural Engineering Program Advocates, American Society of Engineering Education, Black Engineer of the Year Award, Society for Hispanic Professional Engineers, The Tapia Conference and the National GEM Consortium.

The Brookings Institute ranked Michigan Tech No. 1 in Michigan, and No. 4 in the US, in value-added factors such as the kinds of majors offered—particularly in STEM subjects—graduation rates, student loan repayment rates, and the difference between predicted earnings and graduates' actual earnings at mid-career and over a lifetime.

Gersie works closely with academic leaders across campus to help ensure that changes to the existing instructional programming, such as adding new programs or eliminating underutilized programs, are driven by student demand and industry needs. The growing interest among students in majors in transdisciplinary—or convergent—fields (particularly at the graduate level) is the basis for Michigan Tech's Five-Year Capital Outlay Program. The priority project, Phase I of the Center for Convergence and Innovation, will address the needs associated with growth in student interest in preparing for leadership roles related to Industry 4.0.

Digital Transformation Education Critical to Industry

Redefining Education for the Next Generation

Students across campus benefit from the guidance and mentoring provided by outstanding faculty who are committed to students' success.

Sonia Goltz, professor of organizational behavior in the College of Business, is Michigan Tech's 2021 Diversity Award winner. Her research focuses on gender equity issues and related topics—such as social power and equity. She is one of the core members of Michigan Tech's ADVANCE team, which leads a multifaced initiative funded by the National Science Foundation. Goltz is known for bringing innovation to the classroom through the use of new and emerging teaching methods and tools.

Linda Ott, professor of computer science and chair of the Department of Computer Science, received Michigan Tech's inaugural Diversity Award in 2014. She was a founding organizer of the Michigan Celebration of Women in Computing and of the National Center for Women & Information Technology (NCWIT) Aspirations in Computing Michigan Affiliate Award for high school women. Ott led project teams for Michigan Tech's NCWIT Pacesetters and the NCWIT Extension Services for Undergraduate Programs. She received a NCWIT Extension Service Transformation Award Honorable Mention in 2020 for excellence in recruiting and retaining women in computing-related fields.

Digital Transformation Education Critical to Industry

Delivering Sustainable 21st Century Education

Michigan Tech intends to use mass timber as a main construction material for the Center for Convergence and Innovation. Mass timber consists of lumber glued together to form large structural elements. Michigan's forests are nearly 70 percent hardwoods, and mass timber construction provides a market for this important resource. Michigan Tech is a leader in the development of mass timber made from hardwood species in Michigan.

As the fight against climate change intensifies, mass timber is causing a revolution in the construction sector because growing renewable wood absorbs carbon from the atmosphere—and wood buildings can store carbon for hundreds of years. Wood has the potential to turn the construction sector, currently responsible for nearly 40 percent of the world's greenhouse gases, into a carbon-neutral or negative sector when combined with other technologies.

Regional investment in mass timber manufacturing will have a dramatic effect on our rural communities. Industry sectors that depend on the forest are the largest job suppliers in rural northern Michigan. As the demand for paper declines, mass timber presents a new market for forest products. Demand for mass timber within the state will ultimately drive investment and employment in Michigan forest products, manufacturing, and engineering.

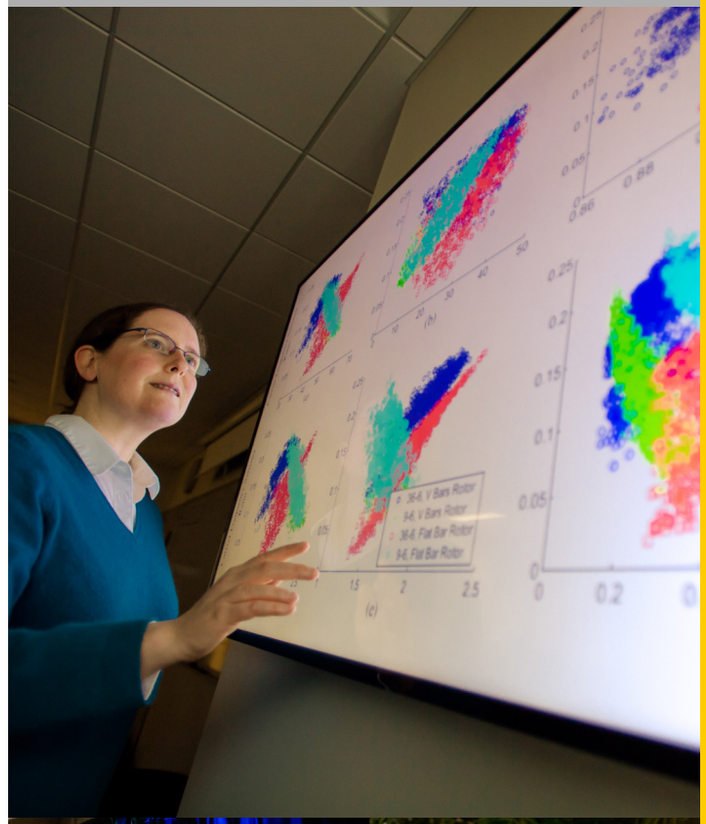
Mass timber is an advanced design and building technology and directly aligns with MTU's goals for cutting-edge innovation.

Digital Transformation Education Critical to Industry

Delivering Hands-on, Real-world Learning Opportunities

Revolutions in computing, connectivity, sensorization, and business are driving **digital transformation** throughout the economy. Yes, digital transformation is a buzzword—and it's also a new reality for every industry. There are many definitions, but perhaps the best is from the Enterprisers Project, which defines digital transformation as the "integration of digital technology into all areas of a business resulting in fundamental changes to how businesses operate and how they deliver value to customers." However, they caution that cultural change is the most difficult—and most important—ingredient. Success critically depends upon an agile workforce that embraces change (Harvard Business Review, March 2019). Unfortunately, neither universities nor companies are currently doing a very good job of preparing this workforce. The Center for Convergence and Innovation will address this critical unmet need, converging the proximity of our business, data science, and computing programs. Students and departments from the Colleges of Business and College of Computing will be commingled into one digital transformation building—the Center for Convergence and Innovation. **This one-of-a-kind building will be uniquely positioned to create Michigan's workforce of the future.**

Michigan Tech is already leading in this space. Created in 2019, our College of Computing is Michigan Tech's fastest growing unit and it remains the only academic college focused solely on computing and data science in the state of Michigan. And, as the only college of business embedded in a public technological university in the state, our College of Business faculty and curriculum are focused on technology innovations in business and entrepreneurship. Our faculty are primed for this combination. **The Center for Convergence and Innovation will position Michigan Tech even further ahead in preparing the state's workforce.** Our programs and research in data science, fintech, management information systems, and data security will obviously benefit from this proximity. Moreover, proximity and cooperation will promote new and deeper collaborations throughout the two colleges and, most importantly, between our students.



Faculty Research Integrated Into Learning

Critical for Technological Innovation and Economic Development

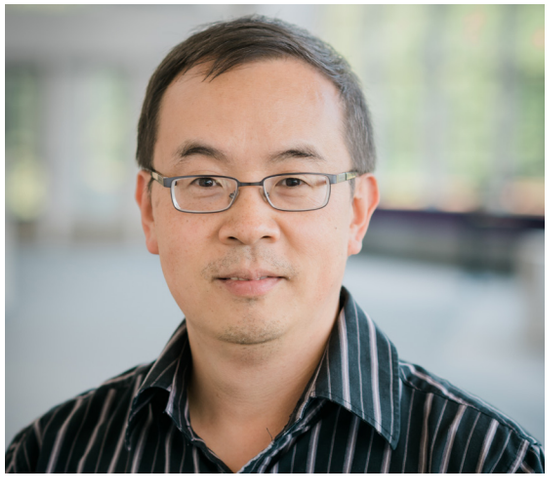
Manish Srivastava conducts award-winning research focused on technological innovation, strategic alliances, and evolution of knowledge structure of firms. Srivastava is an associate professor of strategic management and innovation and is the David L. and Marilyn A. Bernard Endowed Faculty Fellow in Business.

Laura Brown is an associate professor in the Department of Computer Science and the current director of Michigan Tech's interdisciplinary graduate program in data science. She is a co-advisor for Women in Computer Science (WICS).

Mari Buche and other researchers are currently working to provide recommendations to improve the gender balance in STEM fields. She also tries to answer the question, "What does it mean to be titled 'systems analyst,' when you were hired as a 'programmer?' And, if you do not make the transition to 'system analyst,' what will you inadvertently do to your career?"

Faculty Research Integrated Into Learning

Critical for Technological Innovation and Economic Development



Yu Cai, a professor in the College of Computing, also coordinates the BS in Computer Network and the BS in Cybersecurity degree programs. He is also the director of the Computing Education Center within Michigan Tech's Institute of Computing and Cybersecurity.

Ricardo Eiris leverages new technologies to explore the research areas of human-technology interaction, real/virtual humans in mixed reality, cyberlearning, and human-computer/robot collaborations. Eiris is currently an assistant professor in our collaborative construction management program.

Dennis Livesay leads the College of Computing as the Dave House Endowed Dean of Computing. Throughout his career, he has worked across disciplinary boundaries—spanning biophysics, chemistry, computing, and data science.

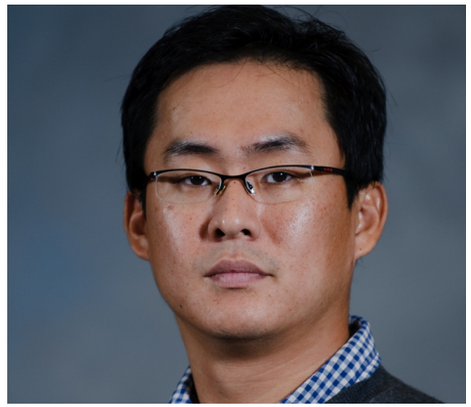
Faculty Research Integrated Into Learning

Critical for Technological Innovation and Economic Development

Elham Asgari holds a BS in Electrical Engineering, Master of Business Administration degree, and a PhD in Business Management—a true example of how business and computing converge. An assistant professor of management and entrepreneurship, she also holds the Charles C. and John G. Gates Endowed Professorship in Entrepreneurship and Innovation.

Alex Sergeyev believes "a mechatronics degree is the key to your successful professional future." Sergeyev is a professor of mechatronics, electrical, and robotics engineering technology (MERET) and director of the FANUC Certified Industrial Robotic Training Center. His research focuses on developing advanced industrial robotics platforms and controls.

Keith Vertanen was a past recipient of an NSF CAREER award and an ACM CHI best paper award. Vertanen's research includes human-computer interaction (HCI), speech and language processing, mobile interfaces, and crowdsourcing.



Soonkwan Hong believes in utilizing innovative technologies as a key piece in successful teaching methods. And in one of his research areas, he focuses on algorithmic consumer culture. Hong is an associate professor of marketing in the College of Business.

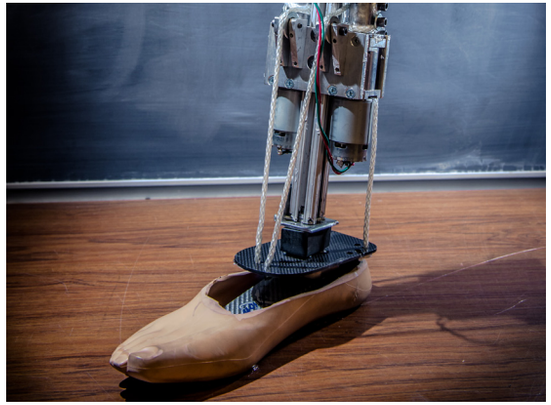
Digital Transformation Education at Michigan Tech

Engineering Management

Only 28 institutions in the US offer this at the bachelor's degree level and Michigan Tech is one of only two in Michigan.

MTU's program (MS and BS) prepares students to meet the growing industry demand for talent that can bridge the STEM/business divide.

Graduates possess firm STEM technical skills accompanied by strong underpinnings in business.



Mechatronics

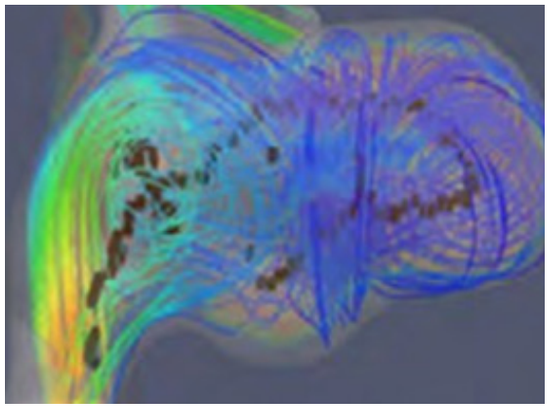
Mechatronics is the convergence of mechanical and electronic systems, which is becoming ubiquitous in modern life.

Just as prostheses improve mobility and agility, artificial intelligence is helping industries to become increasingly agile in responding to consumers' needs.

Cybersecurity

Michigan Tech's cybersecurity program is one of our fastest-growing programs, and is the only one of its kind in the region. The curriculum combines both theory and applied research across multiple computing disciplines, providing students a unique focus.

Digital Transformation Education at Michigan Tech



Computational Science and Engineering

Michigan Tech's PhD program in computational science and engineering engages faculty and students in interdisciplinary research and teaching, focusing on computational aspects of science and engineering.

Master of Business Administration (MBA)

Ranked by University HQ as the No. 5 Best Michigan MBA School, Michigan Tech's program provides students with both foundational skills and cross-disciplinary studies at a high-quality engineering and technological research university. This AACSB (Association to Advance College Schools of Business) accredited graduate program is designed to provide students with the comprehensive education needed to succeed.

Marketing

The marketing program at Michigan Tech offers a technology-driven and creativity-charged curriculum featuring marketing analytics, brand management, digital media marketing, and much more. It's the only branch of business to prepare innovative professionals through hands-on experiences in integrated marketing communication, new product development, consumer behavior and culture, and sales technology.

Digital Transformation Education at Michigan Tech

Software Engineering

The US Bureau of Labor Statistics expects software development positions to increase 22 percent by 2029. Michigan Tech's software engineering program prepares graduates for a wide variety of development roles, including computer games, business applications, operating systems, and network control systems.

Management Information Systems (MIS)

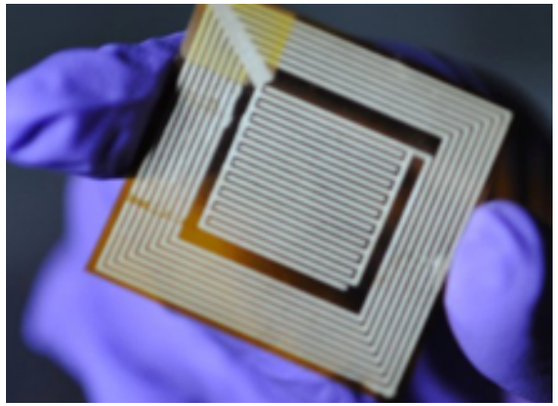
There are not enough students to meet industry need, creating a nationwide demand. Michigan Tech students in this program obtain hands-on experiences and professional education. Courses in programming, usability, network administration, entrepreneurship, graphic and information design, technical and professional communication, finance, and marketing help prepare MIS grads as team players, project managers, and problem solvers.

Health Informatics

Biometric developments, cybersecurity for health care industries, intelligent medical devices, and biomedical imaging all require the integration of digital technologies with health care.

Michigan Tech's master's program is ranked sixth in the nation among the Top 10 Online HI Programs by BestOnlineSchools.org.

Digital Transformation Education at Michigan Tech



Computer Science

Michigan Tech's computer science program provides four concentrations: computer science, computer systems, applications, and game development.

Computer science prepares students for a career in computing, science, engineering, or graduate school. Computer systems focuses on designing, developing, and maintaining computing systems. Applications centers on problem-solving. Game development prepares students for careers in the game industry and related fields.

Accounting

Students benefit from studying accounting at a leading STEM university through cross-disciplinary applications led by nationally recognized professors. Undergraduates can select data analytics as a concentration.

Certificates in accounting analytics and forensic accounting are also available within the Michigan Tech MS in Accounting program.

Computer Network and System Administration (CNSA)

The Computer Network and System Administration bachelor's degree prepares students for some of today's most challenging and exciting career areas: computer network design, administration, and security. Michigan Tech graduates are in high demand and command excellent starting salaries.

FACILITY ASSESSMENT

Continuous Return on Investment

Continuous Process of Facility Assessment

Michigan Tech's space management is a continuous process maintained through our Accounting for Space, People, Indexes, Research, and Equipment (ASPIRE) database. In 2011 Michigan Tech engaged SHW Group Inc. to prepare a comprehensive Facility Assessment and Deferred Maintenance Capital Planning Report. This report became the basis for the current long-term deferred maintenance funding model and prioritization schema that is used to determine the priority of any project.

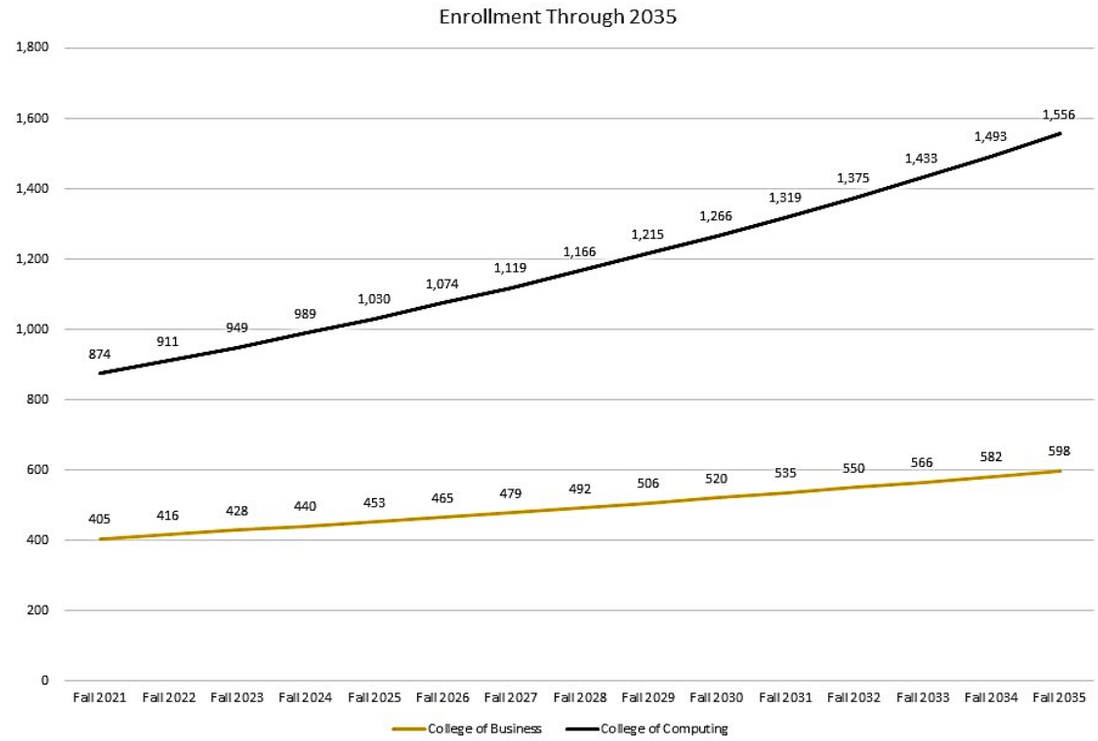
The College of Business currently has 10,911 net assignable square feet (NASF) and the College of Computing has 34,819 NASF. Analysis of projected enrollment increases (p. 45) indicates that the two colleges combined require a total of 325,000 NASF to serve their 2025 projected enrollment and research activity (p. 46).

The status of existing research space also indicates there is need for improvements to these spaces in order to support the current level of research on campus and to maintain our current trajectory of increasing research and external funding. We need to improve our research spaces so that they are no longer classified by National Science Foundation (NSF) as being in satisfactory condition (defined as facilities suitable for continued use over the next two years for most levels of research, but possibly requiring minor repairs or renovation), and are instead classified as being in superior condition (defined as facilities suitable for the most scientifically competitive research over the next two years).

Continuous Return on Investment

Enrollment Growth in the Colleges of Business and Computing

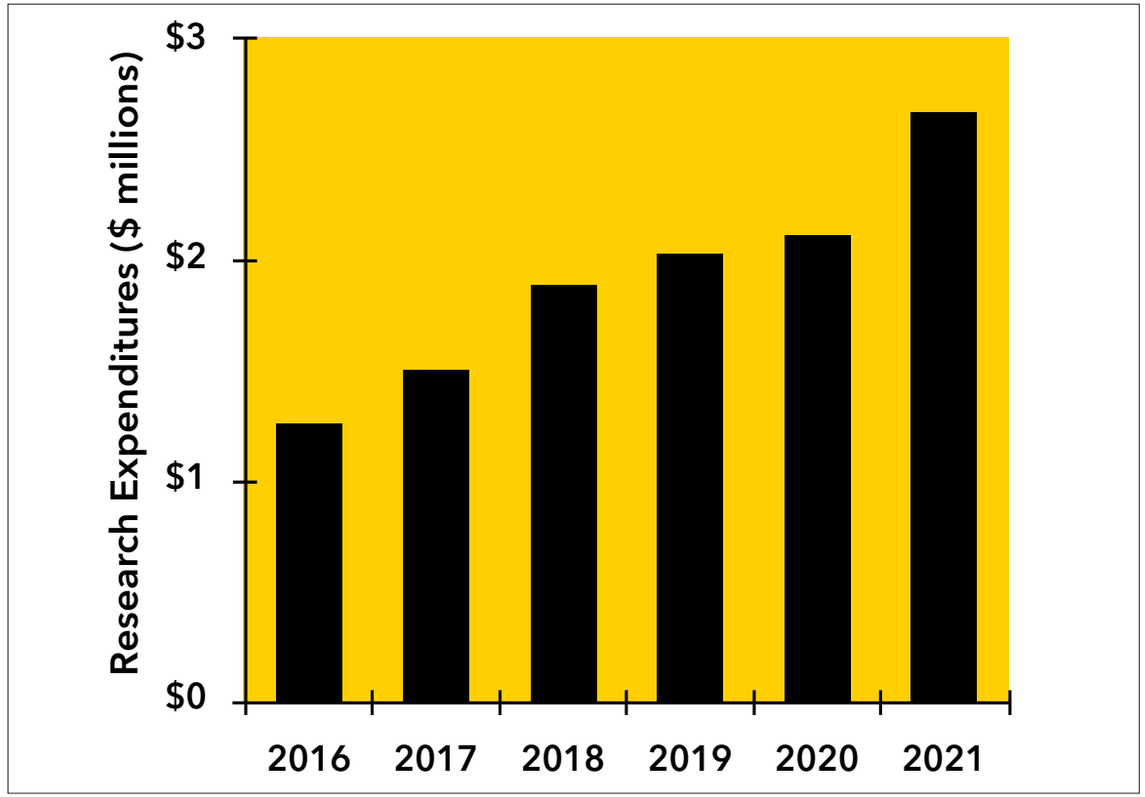
The Colleges of Business and Computing have the two fastest-growing enrollments at Michigan Tech. Current space is inadequate to serve the projected increase in student numbers. These two colleges combined require 325,000 square feet to service the projected enrollment and research growth.



Continuous Return on Investment

Computing and Cybersystems Research Growth

The Institute of Computing and Cybersystems (ICC) is focused on supporting and advancing computing research at Michigan Tech. The ICC includes over 50 different faculty from more than 20 different academic disciplines. Member scientists are collaborating to conduct impactful research, make valuable contributions in the field of computing, and solve problems of critical national importance.



Continuous Return on Investment

Facility Standards for Program Implementation

Michigan Technological University is a State of Michigan constitutional corporation, governed by a Board of Trustees appointed by the governor of the State of Michigan. Although we have a great deal of regulatory autonomy, we endeavor to meet all code and facility standards applicable for the occupancy of our buildings. We are exempt from local building and zoning ordinances and subject only to State of Michigan laws and regulations that are clearly intended to apply to universities. In lieu of local building ordinances and State of Michigan laws and regulations that do not apply at the University, the University chooses to require that new construction adhere to a number of well-established building codes and standards, as listed in our Michigan Technological University Facilities Management Procedure for Codes and Regulatory Agencies Related to Facility Projects.

Regardless of origin or enforcing agency, all of the applicable building codes and standards listed in the document are to be followed. The document guides contractors and others working on University property and provides input on topics such as compliance with the State of Michigan Bureau of Fire Safety rules for schools and/or dormitories. This document does not eliminate the need to also comply with the Michigan Building Code, including its barrier-free provisions.

The 2010 Americans with Disabilities Act also must be followed. Additional codes may apply for particular situations, which are considered on a case-to-case basis. Adherence to narrow-scope codes and/or standards is required by the general codes listed in the document.

The edition of building codes listed in the document will be followed throughout the project, unless construction documents are submitted to the University for final review more than a year after adoption of a new version of code. If more than one year transpires between adoption of the new code and submission of construction documents to the University for final review, the most recently adopted edition of the building codes applies.

Continuous Return on Investment

Functionality of Existing Structures and Space Allocation to Program Areas Served

Academic spaces at Michigan Tech were generally designed and constructed to serve programming that existed in the past. Many spaces are dated and no longer satisfy current demands. For example, we have a number of areas that were originally designed and constructed as undergraduate labs that now must also meet the demands of graduate education and research.

Additionally, many programs need expanded and updated spaces to allow for modern pedagogy that includes projects, teaming, and collaborative research.

Michigan Tech's research and enrollment have both steadily increased, putting significant strain on outdated facilities and limited spaces. Our FY2021 Capital Outlay Request addressed the highest-priority needs at that time. With the H-STEM Engineering & Health Technologies Complex—Phase I nearing construction to address these needs, our focus moves to the Colleges of Business and Computing, which require our attention in order to meet the needs of anticipated enrollment growth within those areas.

Continuous Return on Investment

Priority Need: Business

Top 50

student-run investment funds with over $2M in assets

1st

Applied Portfolio Management students have placed first in global investment competitions seven times

The College of Business occupies two floors of the Academic Office Building (AOB). The AOB opened its doors in 1909, serving as the main administration, mineral museum, and library until the mid-1960s. After the new library and the new administration building were built, the AOB became home to the College of Business in 1970. The AOB is not ADA-compliant and it would be extremely cost prohibitive to bring it up to code. An antique freight elevator is the only means of accessible transportation to portions of the building, while many other areas in the building—including the dean's office, the academic advising office, and the main conference room—are completely inaccessible.

Currently, the College utilizes less than 11,000 square feet of space. Given the building's original purpose, even after remodeling, the layout is insufficient in many ways. The building lacks university classrooms and has only 220 square feet of open lab space for undergraduate students (i.e., less than one square foot of space per student). Faculty must teach in other buildings, and collaboration between students and faculty is often difficult when office space is not located near teaching spaces. The current space certainly will not meet the needs of the digital transformation education of the future.

Michigan Tech hosts the only college of business embedded in a public technological university in the state of Michigan, requiring that the College of Business faculty and curriculum focus on technology innovations in business, computing, engineering, and entrepreneurship. Michigan Tech's business faculty are primed for the cross-college collaboration necessary for preparing the workforce needed throughout the 21st century. Physical infrastructure has significant impact on enrollment, recruitment, and entrepreneurial partnerships. One example linking a physical infrastructure to tangible outcomes is the Applied Portfolio Management Program. Through a generous donor, the College of Business renovated space for a finance trading room. This physical investment in the finance area has produced stellar results.

The Center for Convergence and Innovation would provide advanced technology classrooms to allow for mixed-modality teaching and open physical spaces that will intentionally promote collisions between faculty and students from across both the College of Business and the College of Computing. Breakout rooms, reconfigurable spaces, and theme-based shared digital lab facilities will be spread throughout.

1,077

high school students who participated in the Husky Investment Tournament from fall 2019 to fall 2021

Continuous Return on Investment

Priority Need: Computing

69%

computing enrollment growth since 2014

5

computing programs that grew more than 75 percent last year alone

1,800

computing enrollment goal for 2030

Kanwal and Ann Rekhi Hall was built in 2005 and currently houses most of the College of Computing, including all of the Department of Computer Science. In terms of number of majors, computer science is the second-largest academic degree and third-largest department at Michigan Tech. The building is currently functional and well-utilized, especially its three computer classrooms and Computing Learning Center. However, the facilities do not support pair-programming, which is the current industry standard. Moreover, at only 37,600 gross square feet, the facility is too small for current computing enrollments, and definitely cannot support additional growth or new specialties (i.e., a secure Internet of Things teaching and research environment).

Teaching labs for programs in the Department of Applied Computing are housed in the Electrical Energy Resource Center (EERC). Lab spaces for electrical engineering technology and mechatronics have been recently updated, including the creation of our Mechatronics Playground. Shared with the Department of Manufacturing and Mechanical Engineering Technology, the Playground is a point of pride and provides hands-on opportunities for our students to learn about modern industrial automation tools.

However, the computer lab and server room in the EERC that support the computer network and system administration degree–both of which are regularly utilized by students–are in need of updating. In particular, the server room is obsolete, poorly cooled, and undersized. The teaching lab is similarly outdated and does not support collaborative learning and related teaching innovations.

A lack of physical space for faculty and student research is one of our most critical challenges. Most dedicated computing research labs are in Rekhi Hall, but with only 155 square feet per faculty across both buildings, a lack of physical space is severely limiting growth. Moreover, the server room in Rekhi Hall that supports our research in high-performance computing remains at less than half capacity due to fundamental design problems and HVAC failures.

Continuous Return on Investment

Priority Need: Digital Transformation Partnerships

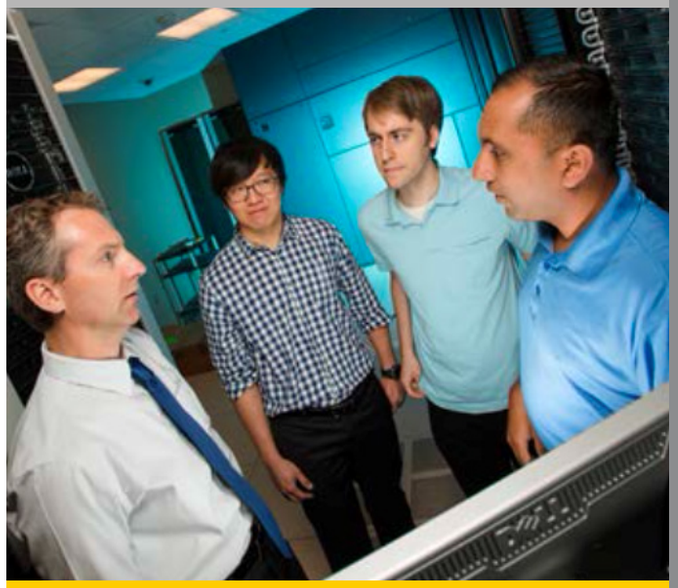
Computing research at Michigan Tech inextricably links the College of Computing and the Institute of Computing and Cybersystems (ICC). The ICC promotes collaborative, cross-disciplinary research and learning experiences for the benefit of MTU and society at large. Nearly all faculty from the College of Computing belong to the ICC, but it also hosts more than 30 faculty from outside the College, making it one of the most far-reaching research units on campus. The ICC is additionally unique in that it is composed of six subcenters, corresponding to (i.) computing education; (ii.) cyber-physical systems; (iii.) cybersecurity; (iv.) data sciences; (v.) human-centered computing; and (vi.) scalable architectures and systems. This year, both the College of Computing and ICC set records for external research expenditures.

The ICC has no physical home, which is hampering additional growth. The College is currently trying to leverage what research space it has to advance both computing research and the ICC, but the College does not even have enough space to appropriately support its current research faculty. Phase II of the Center for Convergence and Innovation will create a physical home for the ICC to advance collaborative digital transformation research even further, especially in terms of business analytics, management information systems, and fintech research.

$5M

five-year research expenditures target

Keeping with the convergence theme, the future vision for the Center for Convergence and Innovation provides spaces to co-locate industry partners in the same building as our academic programs. Michigan Tech will create a unique and vibrant environment where students work hand-in-hand with faculty and corporate business leaders to both create and implement innovative digital transformation efforts. MTU prides itself on our applied and experiential learning model, and this will take us to the next level.



19

number of new research grants in FY21

$2.7M

ICC research expenditures in FY21

Continuous Return on Investment

Priority Need: Chemistry and Chemical Engineering

The Chemical Sciences and Engineering Building, built in 1968, is largely in its original state. The majority of the classrooms, laboratories, research areas, and administrative spaces remain as they have been since original construction, with the exception of some renovations that have taken place over the years. As second and third generations of students come to Michigan Tech, the space remains largely as it was when their parents and grandparents attended.

Recently two undergraduate laboratories were remodeled to contemporary standards, serving as a model for future projects, and a new Chemical Stores addition was recently completed, improving the safe handling of chemicals. An outdated cooling tower was replaced in FY2017, finishes have been updated in various locations throughout the building, and the roof was recently replaced. Nevertheless, a significant number of additional issues remain to be addressed.

The H-STEM Complex—Phase I project will involve limited repurposing of this building, which will provide an opportunity to utilize its well-maintained shell. The new addition's capabilities will strengthen the University as a whole.

Of critical importance is improving the design of the ventilation system, which is inadequate for the research being done today; updating the chiller and humidifiers; removing asbestos, which can be found throughout the facility; and replacing end-of-life finishes. H-STEM Complex—Phase II would address these concerns and transform the existing chemistry and chemical engineering lab space into a modern team-focused research environment.

90%

students participating in co-ops, internships, or Enterprise

8th

rank of chemical engineering among highest-paying careers

3

semesters of student experience in a simulated chemical plant

Continuous Return on Investment

Michigan Tech's Previous Capital Project: A Model for Success

The University's last capital outlay project, the Great Lakes Research Center (GLRC, pictured right), provided much-needed space for water-related research on campus. The GLRC provides state-of-the-art laboratories to support research on a broad array of topics. Faculty members from many departments collaborate on research, ranging from air-water interactions to biogeochemistry to food web relationships.

The GLRC has seen continued growth in the number of proposals submitted by multidisciplinary teams and proposals with co-principal investigators, demonstrating growth in individuals interested in contributing toward team science. In the last five years, the GLRC has increased awarded projects by 370 percent (from 16 to 59), and gone from $1.4 million to $7 million in awarded funds, an increase of 500 percent.

Like the GLRC, the H-STEM Complex—Phase I, which has been approved for construction, will address growing needs at Michigan Tech. The H-STEM Complex—Phase I project is anticipated to result in significant increases in the total value of proposals for research funding submitted and awards received. This will allow Michigan Tech to continue to increase its contributions in support of the state of Michigan's industries.

As a result of GLRC researchers' efforts, Michigan Tech ranks highly in research and development expenditures in Michigan in the areas of environmental science, atmospheric science, and oceanography.

Mandated Facility Standards

Utility System Condition

In the mid-1960s Commonwealth Associates Inc. conducted a campus utilities study. Installation of the campus utilities, which began in 1970, followed the study's recommendations for underground services. The Facility Assessment and Deferred Maintenance Capital Planning Report of 2011, prepared by SHVV Group Inc., provided additional guidance regarding utilities and infrastructure. A new comprehensive campus master plan led by SmithGroup will provide a prioritization framework for the future development of the campus.

Central Heating Plant

Michigan Tech has a central heating plant and steam distribution system serving the University's campus. The plant has a total connected boiler capacity of 250,000 pounds of steam per hour providing over 100 percent redundancy at current steam demands. The steam distribution system consists of a walk-in tunnel system from the plant to the academic core. Tunnels run the entire length of the campus core and southward to the athletic complex. Service to individual buildings is provided through a mini tunnel system. The distribution system was designed in anticipation of future growth. New facilities in the academic core are anticipated to be within 100-200 feet of a tunnel. The existing steam plant was built in 1950, with additional capacity added in 1957, 1964, and 1970. Burner and control upgrades performed in 1970 and 2002 improved efficiency and reliability of the system. Planned maintenance efforts continue to focus on long-term reliability of the plant. Opportunities exist for improvements in the steam-generating and distribution system to improve efficiency. The central heating plant presently serves 2,730,000 gross square feet of campus facilities with an instantaneous peak load of 90,000 pounds per hour and a one-hour average peak load of 85,000 pounds. The present connected load includes instructional, research, administrative, housing, athletic, and service facilities. Existing plant capacity can reliably provide steam services for an additional 1,000,000 square feet of building space, while ongoing energy conservation and technology improvements further increase the plant's ability to service additional space.

Mandated Facility Standards

Utility System Condition

Electric and Communications Infrastructure
Michigan Tech's incoming electrical service is on a 69,000-volt American Transmission Co. line that terminates at an Upper Peninsula Power Company substation located next to Michigan Tech's substation. Michigan Tech's 9.0 MW diesel generating plant provides backup power to the entire campus in an emergency or power curtailment. Power is distributed to each building where transformers reduce the incoming voltage. The electrical/communications distribution system consists of a concrete-encased duct bank that runs the entire length of the academic core and south to the athletic complex with facility connections tapped from the main duct bank. The campus electrical distribution system was replaced in 2003. Electricity is distributed throughout campus via three separate lines. Two lines serve each building, allowing loads to be balanced across all three lines and providing redundant feed to each building.

The system capacity is 11,500 kVA with 100 percent backup capability. Peak demand is 6,800 kVA at approximately a 0.9 power factor. The system will reliably service an additional 2,000,000 square feet. With planned maintenance, the 2003 cable installation is expected to last through 2053.

Michigan Tech's communication system consists of a number of underground conduits that provide adequate space for University communication infrastructure. Both fiber-optic and copper pathways exist. The size and location of these will enable the system to meet future needs. Should additional fiber be needed, these pathways will be suitable. Any new structure built on campus would tie into this system as part of the project scope.

Water
Michigan Tech's water system is a combined fire and domestic looped manifold system, with an eight-inch main around the circumference of the campus. There are no capacity concerns with the water distribution system. Water usage is 28 percent below what it was in the late 1970s as a result of conservation efforts. Michigan Tech's water mains are sized for an annual usage of 375,000,000 gallons and a peak demand of 1,100 gallons per minute. Current usage is approximately 100,000,000 gallons annually. Water is provided by the City of Houghton. In 1996, the City of Houghton completed construction of a new water plant and continues to make distribution improvements that will meet Michigan Tech's needs into the foreseeable future.

Mandated Facility Standards

Utility System Condition

Sewers
Michigan Tech's sewers are separated into storm and sanitary systems. The storm system drains into the Keweenaw Waterway at various locations. Following the 2018 Father's Day Flood, riverine and urban flooding was identified as a critical vulnerability. As recommended in the 2020 MTU Multi-Hazard Mitigation Plan, a campus drainage assessment plan is needed to understand backup and flooding. A 15-inch sanitary main, capable of handling 3,500,000 gallons per day, ties directly into the Portage Lake Water and Sewage Authority's transmission main. The treatment facility is located east of campus. The size of Michigan Tech's sanitary main and the new sewage treatment plant's capacity of 18,000,000 gallons per day provide sufficient capacity for foreseeable future needs. Regular inspection and maintenance of these aging systems will be required in the near future.

Facility Infrastructure Condition
Michigan Tech's roads, sidewalks, and parking lots are in satisfactory condition and are maintained according to a replacement plan and conditional assessment. Recent improvement projects include repairing and replacing sidewalks on the main campus. The University does not presently have a parking deck, nor any bridges, in its road system.

Adequacy of Existing Utilities and Infrastructure Systems for Current and Five-Year Projected Programmatic Needs
The central heating plant can serve an additional 1,000,000 square feet and the electrical system can service an additional 2,000,000 square feet; both are beyond the University's needs for the upcoming five years. A $100,000 investment in the south campus high-voltage line in 2018 further increased system capacity and reliability. The water plant and sewage facilities both provide sufficient capacity for foreseeable long-term needs. Michigan Tech completed two projects in 2019 to separate storm drain piping from sanitary sewer lines, lowering unnecessary flow to the sewage treatment plant and leaving more capacity for future projects.

Mandated Facility Standards

Campus Sustainability Initiatives

Michigan Tech is investing heavily in improving the sustainability and resilience of our financial, built and natural environments. The Tech Forward initiative on Sustainability and Resilience is in year two of a five-year investment aimed at positioning the institution as an internationally recognized academic thought leader in the Fourth Industrial Revolution. The initiative has made great strides through engaging stakeholders across campus and the community and strategically investing in solutions-based research, innovative education, and campus sustainability improvements.

Michigan Tech also hired its first director of sustainability and resilience in September of 2021. Reporting directly to the chief financial officer and senior vice president for administration, the director's charge is to provide leadership for innovation and to enhance ongoing campuswide sustainability and resilience efforts in academics, research, and campus operations. The director's early focus is to incorporate sustainability and resilience considerations into the campus master planning process to ensure these themes are at the heart of our campus identity moving forward.

Our cooperative efforts to advance sustainability and resilience are beginning to pay off. We earned a Silver rating from the Association for the Advancement of Sustainability in Higher Education (AASHE) Sustainability Tracking, Assessment and Recording System (STARS) in the fall of 2020. Students, faculty, and staff have conducted a comprehensive gap analysis and are actively pursuing a path towards a Gold rating for our next submission in 2023.

A carpet of plants on many of the second-floor roofs at the GLRC soak up runoff and act as natural temperature regulators—helping to keep the building cool in the summer months.

Mandated Facility Standards

University Enterprise-wide Energy Plan, Goals, and Audit Schedule

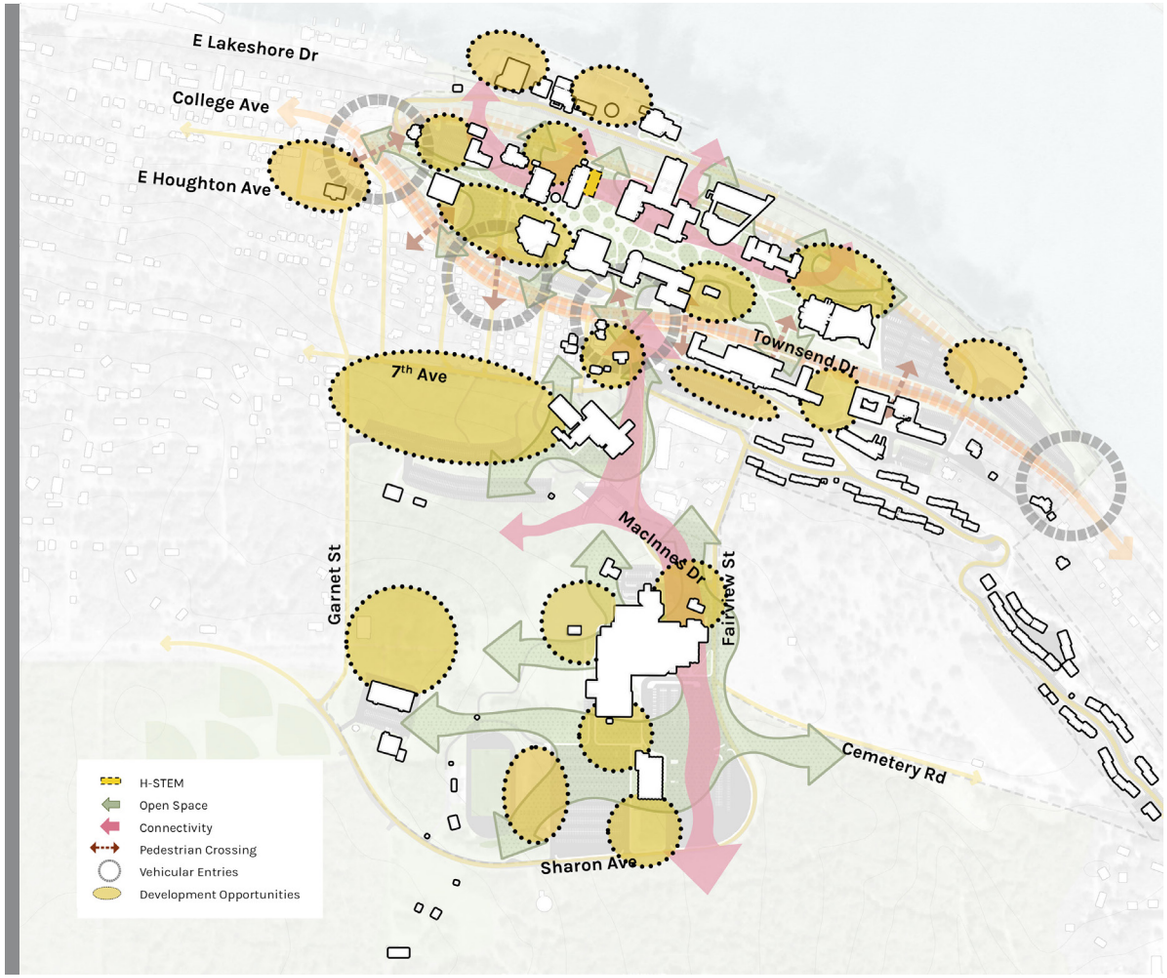
The University strives to identify and implement energy reduction strategies and projects based on input from the Campus Sustainability Oversight Committee, Green Campus Student Enterprise, Facilities Management, and the campus community. Nominated sustainability projects and strategies are vetted and prioritized using a life cycle cost approach to determine return on investment. Michigan Tech has recently added a director of sustainability and resilience to lead these efforts.

Energy Efficiency Improvements
Potential energy saving projects include: HVAC recommissioning; lighting controls; interior and exterior LED lighting upgrades; exhaust air energy recovery; computer server room infrastructure; water saving projects; and combined heat, power and cooling. The University is in the process of upgrading HVAC control systems in all buildings.

The $941,000 West McNair Hall Bathroom Renovation and Maintenance Repairs project completed in the summer of 2017 reduced water use in the building by over 20 percent, saving $20,000 per year. The GLRC, the newest building on campus, is heated by waste heat recovered from boiler exhaust gas in the central heating plant, reducing the heating cost for the building by over 70 percent. Michigan Tech is one of only three colleges and universities in Michigan recognized by the USEPA Green Power Partnership for use of sustainable electricity. H-STEM Complex—Phase I is designed to achieve LEED Gold certification.

Electricity Cost Management
Through the State of Michigan Energy Choice Law, Michigan Tech has been able to control energy costs by purchasing energy from an Alternative Energy Supplier (AES). This has resulted in savings for the University of over 20 percent as compared to the local utility rate. Fifty percent of the electricity purchased under our contract is from renewable sources.

Land and Capacity for Future Development



The University owns real property in the Michigan counties of Houghton, Keweenaw, Baraga, and Ontonagon, and in the Wisconsin county of Lincoln. Each year the Michigan Tech Board of Trustees Audit and Finance Committee reviews an updated list of real properties that could be considered for disposition and advises on strategy.

Land acquisitions through donations are vetted to identify their academic, research, or business purpose and are liquidated if no future use can be determined.

The "Fresh Look" Scenarios Plan Report of 2006 as well as the Campus Master Plan 1999 Amendment and all previous Master Plans and supplements contain information identifying footprints for potential academic, housing, and recreation building sites. Depending on the scope of the project, the campus has capacity for projected growth over the next 15-20 years. Potential land acquisition in areas local to the core campus are identified in the "Fresh Look" Scenarios Plan Report of 2006. The creation of a new comprehensive campus master plan is underway. The University and SmithGroup started in February 2021 with completion slated for early 2022.

State Building Authority Obligations

Existing Obligations to the State Building Authority

Michigan Tech has four building projects with obligations to the State Building Authority.

Building	Lease Began	Lease Ends
Environmental Sciences and Engineering Building	1999	2034*
Performing Arts and Education Center	2001	2036*
Center for Integrated Learning and Information Technology	2005	2040
Great Lakes Research Center	2013	2048

*State Building Authority has indicated these are paid in full and they are in the process of reconveying the property to the University.

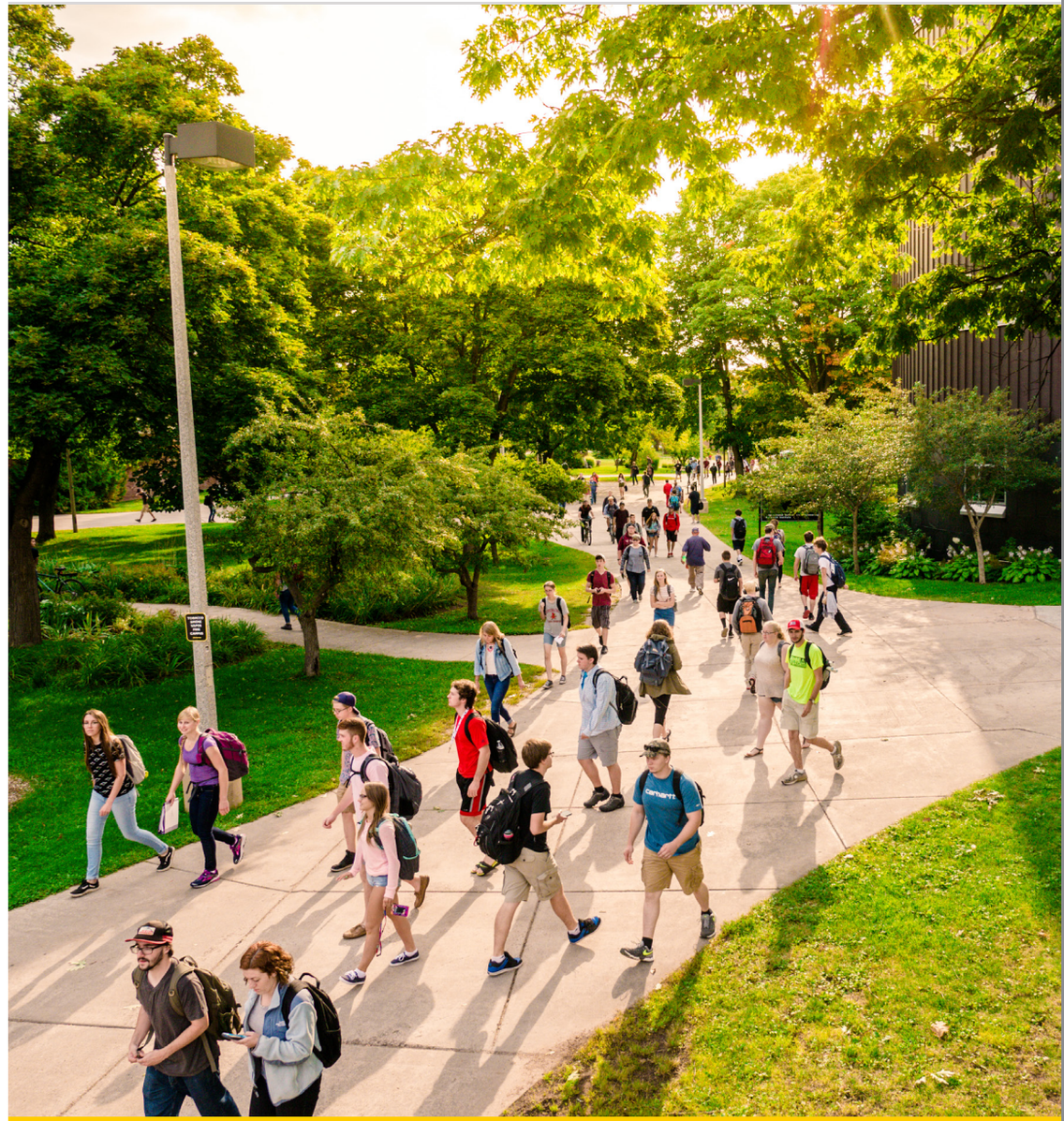
Facility Assessment Required Data

See Appendices:

Net to Gross Area Ratio Summary

Summary of Assignable Area

Statement of Values



IMPLEMENTATION PLAN

Priority of Major Capital Projects

REQUESTED FROM THE STATE WITH ESTIMATED COSTS

Five-Year State Capital Outlay Plan and FY2023 Capital Project Request

Rank	Project Name	Gross Sq. Ft. New	Gross Sq. Ft. Renovated	Total Project Cost (000s)	State Funds (000s)	Est. Cost. Univ. Funds (000s)	Start/End Dates (years)
1	Center for Convergence and Innovation (CCI)—Phase I	175,000	0	$70,000	$29,900	$40,100	2023/2026
2	Center for Convergence and Innovation (CCI)—Phase II	150,000	0	$60,000	$30,000	$30,000	2024/2027
3	H-STEM Engineering and Health Technologies Complex—Phase II	12,500	87,000	$69,000	$30,000	$39,000	2027/2028

Center for Convergence and Innovation (CCI)—Phase I: The Center for Convergence and Innovation (CCI) will help position Michigan's economy as a leader in digital transformation through cutting-edge research, workforce development, and strategic partnerships. According to the Michigan Bureau of Labor, the state expects a 7.5 percent increase in workforce demand for business and financial operations, computer and mathematical operations, and engineering, or roughly 11,000 new jobs over the next seven years. Michigan Tech's College of Computing alone saw a 10 percent year-over-year increase in undergraduate enrollment for fall 2021 and is poised to double in size by the end of the decade. Phase I of the CCI also aligns with Michigan's "Sixty by 30" and economic prosperity goals by supporting innovations in computing, connectivity, sensorization, and business in this new age of digital transformation.

Congruent with the state's long-term economic transformation, the project will provide a place to converge existing business, data science, and computing programs to spur new degree programs, entrepreneurial projects, outreach to businesses and communities, increased industry and government funding for research, and the development of a highly agile workforce prepared to implement digital transformation solutions throughout Michigan. Students and employees from the College of Business and College of Computing will be commingled to promote cross-disciplinary collaboration, innovation, and entrepreneurship.

The design of the building will intentionally promote connections among faculty and students from both colleges. Reconfigurable spaces and theme-based shared digital lab facilities will be spread throughout. Additional features of the building will include convergence centers of excellence (fintech, cybersecurity, data science and business analytics, health informatics, and tech-based entrepreneurship); active-learning, computer-learning, and remote-learning classrooms; flexible collaboration spaces open to all; student learning centers; open-access conference rooms; a reconfigurable digital makerspace; an entrepreneurship training hall; and large, mid- and small-sized lecture halls. In addition to meeting our convergence needs, this building will facilitate continued aggressive growth. The estimated investment of $70,000,000 will allow Michigan Tech's Colleges of Business and Computing to realize their combined potential and ensure Michigan's future economic prosperity.

Priority of Major Capital Projects

REQUESTED FROM THE STATE WITH ESTIMATED COSTS

Five-Year State Capital Outlay Plan and FY2023 Capital Project Request

Center for Convergence and Innovation—Phase II: Phase II will focus on expanding vitally important areas within the Colleges of Business and Computing and intentionally support University-industry collaboration. The building will include P3 (public-private partnership) space reserved for Michigan industries to co-locate on campus as University researchers work together with business leaders to address the talent needs of Michigan's workforce and advance the state's economy through research and development. The Phase II project will promote rapid conversion of digital technology innovations into industry to provide Michigan firms with a competitive advantage. These public-private partnerships will also provide faculty and students with opportunities to engage in real-world problem- and project-based learning that will give them a clear understanding of how computing and business can collaborate to promote economic prosperity and social mobility for the state and its citizens.

Michigan Tech is known within industry for producing graduates who hit the ground running from day one on the job. The co-location of industry within the academic environment will strengthen Michigan's Tech ability to serve the industries of the state by offering experiential education to all students. The total project cost is estimated at $60,000,000, and this investment will allow for construction of a 150,000-square-foot addition to the Center for Convergence and Innovation.

H-STEM Engineering and Health Technologies Complex—Phase II: continues renovation of our existing Chemical Sciences and Engineering building and provides new space. Project features will build on the synergies between engineering and the health sciences that led to Phase I of the H-STEM project. Phase II will focus on expanding and renovating general chemistry and chemical engineering labs, flexible updated active learning classrooms, upgrading air supply and exhaust systems, developing student support space for undergraduate advising, and updating the building's envelope to increase energy efficiency and make improved use of natural light. Phase II will further enable Michigan Tech's growing research and degree programs important to the Michigan economy in areas such as biotechnology, bioengineering, and the continuum of chemical, biological, and human-health sciences. Phase II will fully embrace emerging strategies to support safety and effective instructional practices. Phase II will transform an existing facility's rigid layout—consisting of small individual labs with virtually no collaboration or team working space—to a modern and welcoming environment that will include highly visible shared spaces where teams of students and faculty will develop creative solutions to advance science to support manufacturing across a variety of Michigan industries. Current work ranges from vaccine manufacturing, the development of biofuels and bioenergy applications, drug development, protein folding, and many other applications that will all be enhanced through the renovation of laboratories and working spaces in Phase II.

The value of facilitating this kind of interaction can be seen in the recent award of the €1 million Merck 2021 Future Insight Prize for work done by a team of faculty from Departments of Biological Sciences, Chemical Engineering, and Material Sciences and Engineering. The total estimated for this project is $69,000,000.

Current Deferred Maintenance

Relative Estimate of Michigan Tech's Current Deferred Maintenance Backlog

In 2011 Michigan Tech contracted with the SHW Group to complete the Michigan Tech Facilities Assessment and Deferred Maintenance Capital Planning Report 2011. That report, from May of 2011, determined the deferred maintenance backlog at Tech to be approximately $126,900,000. In context of the report, SHW defined deferred maintenance backlog as "expenditures for repairs which were not accomplished as part of normal maintenance or capital repair which have accumulated to the point that facility deterioration is evident and could impair the proper functioning of the facility. Deferred maintenance projects represent catchup expenses."

In 2014 Tech began funding deferred maintenance, with an initial annual budget of $500,000. Since that time, just over $10,750,000 of deferred maintenance projects have been completed or are currently being completed. However, because additional items do get added as they arise, the deferred maintenance backlog is still estimated at approximately $125,000,000.

It is important to note that Michigan Tech does not intend to act on some of the deferred maintenance needs currently included within the deferred maintenance backlog. Technology changes, programmatic changes, and differing conditions at predicted end of life can impact whether a project will ever come to fruition. These items are taken into consideration annually as part of the review process and updated on a five-year deferred maintenance planning list. With this in mind, the actual deferred maintenance backlog of projects that Tech plans to address is closer to $51,000,000.

Impact from Deferred Maintenance and Structural Repairs

There is a long-term maintenance plan in place to address the deferred maintenance backlog. In FY2022 $2,680,000 in deferred maintenance projects was budgeted, with a planned increase each year until an annual total of $8,000,000 is reached and maintained.

A funding model for maintenance and renewal has been developed by the Association of Physical Plant Administrators (APPA) and the National Association of College and University Business Professionals (NACUBP). A benchmark for annual funding should equal 2 percent of the building replacement value.

Addressing deferred maintenance is an important piece of the University Strategic Plan because it allows the University to provide exceptional services and infrastructure. Recently completed projects such as the $1 million renovation to the chemistry undergrad labs addressed both deferred maintenance issues while raising the spaces to align with the University's reputation. These spaces support a large number of students in the engineering and science majors. Elevator upgrades and replacement continue to be a priority along with building envelope and infrastructure. Over 2,000 linear feet of failing domestic water pipe was replaced in the Student Development Complex, the ice arena roof was replaced, and the passenger elevator in Wadsworth Hall was replaced, while three elevators are nearing completion in the EERC.

Current investments in the campus utility systems, such as the campus generator controls, boiler burners and controls, and steam tunnel repairs and replacements increase our reliability and resilience. Small in visibility or wow factor, but large in impact, these are the types of projects that continue to need our attention.

Current Deferred Maintenance

Relative Estimate of Michigan Tech's Current Deferred Maintenance Backlog

Status of Ongoing State Building Authority (SBA) Financed Projects
All SBA resource projects have been completed as planned to maximize program, research, and relationship (with donors who made gifts to the projects) impact. Given this, Michigan Tech is well positioned to move forward with our Five-Year Capital Outlay Plan and Capital Outlay Request, if funded.

Building	Project Status
Center for Integrated Learning and Information Technology	Completed
Environmental Sciences and Engineering Building	Completed
Great Lakes Research Center	Completed
Performing Arts and Education Center	Completed
HSTEM Engineering and Health Technologies Complex—Phase I	Approved

Rate of Return on Planned Expenditures

Enrollment Growth Helps Rate of Return

A strong return on investment for the Center for Convergence and Innovation is supported by data on recent enrollment growth in both the College of Computing and College of Business. Since 2014, both colleges have grown considerably. Enrollment in College of Business graduate programs has more than doubled over that period. Similarly, enrollment in all computing programs has increased by 69 percent, with an average of 8 percent in annual growth. This year alone (fall 2021), enrollment in the College of Computing increased over 10 percent, with five different programs growing by more than 75 percent. The rates of growth in enrollment in data-driven and high-demand majors housed within both the College of Business and the College of Computing are anticipated to continue to grow far into the future. As a result of this growth, the project will not impact student tuition. The costs associated with the new building will be covered by increased revenue resulting from increased enrollment in business and computing disciplines. Further, and importantly, Michigan Tech will only be able to provide access to these high-demand programs to students who are interested in pursuing degrees in these fields if we have the types of spaces and facilities that will be included in the Center for Convergence and Innovation.

Michigan Tech has worked with its capital advisors to pro forma debt service schedules and overall capacity for the project in an effort to ensure that current debt capacity exists for the University's match while maintaining our A1 credit rating. Based on projected increases in both enrollment and research funding, the University anticipates that the project will not have a negative impact on University finances, including both debt capacity and bond rating.

The rate of return on this project, like others, takes into account planned maintenance to increase efficiencies and eliminate waste. For example, in the University's recent H-STEM Complex, we will recommission the current HVAC infrastructure and incorporate new sustainable technologies that will improve operational savings. Our Facilities Management Sustainability Initiatives will significantly increase operational savings and enhance the rate of return over time for both the H-STEM project and the proposed Center for Convergence and Innovation.

Collaboration in this building will harness innovations in computing, connectivity, sensorization, and business intelligence, which will be work that enables Tech to strengthen Michigan's ability to serve industries around the state and advance their competitive advantage. The design of the $70 million facility is not one that just happens to teach both business and computing, but one that looks, feels, and behaves like the places students will be working in as they engage in the Fourth Industrial Revolution.

Alternatives to New Infrastructure

Michigan Tech always considers alternatives to new construction before creating new infrastructure. Since our capital outlay from the State of Michigan in 2008 for the Great Lakes Research Center, we have repurposed or expanded existing spaces to address needs.

For example, Michigan Tech's doctorate in physical therapy, which was established in partnership with Central Michigan University, occupies renovated space in an existing structure. The Advanced Technology Development Complex (ATDC) was renovated to create an innovative distance learning center that includes lecture and laboratory spaces. The main office space of the ATDC was repurposed to house the University's Advancement Department, which located them on campus in the heart of active research. A sleep laboratory was created in the existing Student Development Complex to support NIH-funded research in a quiet location that is removed from the main campus.

A new electron microscope is housed in a suite added to the ATDC that provides protection from vibration and electromagnetic interference that could negatively impact the equipment if it were located in a more congested area. Additions and renovations to the existing Chemical Sciences and Engineering Building have also been made. The new Chemical Stores facility was added to the building, and undergraduate teaching laboratories have recently been updated. As our current campus master planning process progresses, it has become apparent that our current space is not sufficient to address the trajectory of the University.

Michigan Tech is a careful and conscientious steward of its facilities, updating and upgrading current spaces whenever possible. In the case of the proposed Center for Convergence and Innovation project, the magnitude of changes needed based on the large growth projections of the Colleges of Business and Computing require the addition of a new space. Currently, the world's most successful companies are—at their core—computing and data intensive. By combining the College of Business and the College of Computing into a shared center, Michigan Tech will be able to address the digital transformation occurring across the entire economy. Initial discussions involved the creation of two new buildings to house the College of Business and the College of Computing separately. By strategically placing these colleges together, they will be able to share support spaces and building infrastructure. This "sharing" concept will help reduce building square footage needs and energy costs for the University as a whole.

Alternatives to New Infrastructure

The only possible alternative to the proposed project would involve complete redesign and renovation of the physical spaces that currently house the College of Business and College of Computing. However, the age of the Academic Office Building, which currently houses the College of Business, makes renovation nearly impossible. Furthermore, the current construction and layout lends itself to be repurposed into administrative space, which was the original intent for the building when it was built in 1908.

In order to meet the needs of students and faculty in both colleges, the renovation option would also require that many existing classrooms, offices, and support areas be repurposed into open and flexible collaboration spaces. This approach would result in an overall decrease in classroom, office, and support space which would in turn lead to substantial overcrowding of remaining space, within the Colleges of Business and Computing, as well as other colleges. Renovations to both the College of Business and the College of Computing would be very costly, making new construction the preferred approach to creating the amount and types of spaces needed.

The need for additional space is exacerbated by the fact that Michigan Tech is growing. Michigan Tech has aggressive growth goals that will allow the University to continue to support the ever-evolving tech-focused economy. During fall semester 2021, the University enrolled its largest entering class since 1982. Because of current and planned future growth, Michigan Tech's in-progress campus master planning process is identifying short- and long-term priorities for improvement of our physical plant. Two conclusions emerging from the planning process are that the University needs more flexible space to support students' and faculty members' collaboration and that there is substantial need to update laboratories and classrooms. Most of Michigan Tech's infrastructure was built during the middle of the 20th century; the building that currently houses the College of Business is much older.

Like many buildings on campus, the areas housing the College of Business and College of Computing were designed at a time when the importance of open collaboration spaces, flexible classroom designs, and the concept of putting research on display was not fully recognized. Although the University is already planning to update and repurpose existing spaces in many buildings to enable and promote the types of informal and formal collaborations that lead to innovation, construction of the Center for Convergence and Innovation will help to address the University's overall need for additional space.

Maintenance Schedule

Maintenance Schedule in Excess of $2,000,000

FY2022-FY2026 Maintenance Schedule
Scheduling of maintenance projects is informed by data collected from annual and biannual reporting on facility assessment. Project priorities are responsive to new safety standards, national benchmark goals for research spaces, and overall maintenance needs. This strategic approach allows Michigan Tech to recruit and retain research talent and provide students the most industry-relevant education. Attainment of our goals, in terms of rankings, career placement, and the University's Portrait 2045, depend on our ability to make strategic maintenance decisions.

The University recently completed a large maintenance project in our student apartments, the Daniell Heights Maintenance project. It is valued at $13,600,000 and was completed in June of 2019. Additionally, as a result of the federally declared flooding disaster that took place on June 17, 2018, the University is undertaking a number of repair and remediation projects. The largest associated project is the Administration Building Ground Floor Flood Damage Repair project, estimated to cost $2,400,000.

The University is also considering a restroom renovation project next summer in Douglass Houghton Hall ($2,300,000), the addition of a second passenger elevator to the Dow Environmental Sciences and Health Building ($1,280,000), Chemical Sciences and Engineering Building window replacement ($1,250,000), Minerals and Materials Engineering Building heating and ventilation upgrades ($1,500,000), and the repairs of the Lakeshore Center dock ($1,600,000). While there are a number of additional projects planned for FY2023-FY2026, no other single stand-alone project valued at over $1,000,000 is planned for those years.

Nonroutine Maintenance Budgeted for FY2022 and Relevant Sources of Funding
The University began budgeting general fund dollars toward nonroutine maintenance in FY2014, with $10,700,000 in projects completed to date. A total of $2,100,000 is budgeted for FY2022 with a planned increase each year until an annual total of $8,000,000 is reached and maintained. In order to maintain a budget-neutral impact on student tuition, increases in the nonroutine maintenance budget have been implemented over an extended period of time. A rescue account has been established this fiscal year to help address emergency repairs that occur but do not have budgets assigned.

APPENDICES

Class Section Counts by Enrollment and Level

Fall 2021

As defined by Common Data Set standards

Number of Students Enrolled per Class								
Undergraduate	**2-9**	**10-19**	**20-29**	**30-39**	**40-49**	**50-99**	**100+**	**Total**
Class Sections	289	253	240	101	63	124	33	1,103
Class Subsections	80	219	73	28	22	26		448
Graduate	**2-9**	**10-19**	**20-29**	**30-39**	**40-49**	**50-99**	**100+**	**Total**
Class Sections	91	38	7	2	2			141
Class Subsections	33	3						36

Given the expected growth in enrollment, if we maintain the current student-to-staff/faculty ratios, class size projections over the next several years should not be substantially different than the distribution shown. The project request will alleviate scheduling strain that our growing student population is placing on current facilities, particularly labs.

2023 Five-Year Capital Outlay Plan
Michigan Technological University

III. Staffing and Enrollment

Enrollment Distribution by College and Major

	Standard Learning						Online Learning						
	Undergraduate			Graduate			Undergraduate			Graduate			
	Full Time	Part Time	Total	Full Time	Part Time	Total	Full Time	Part Time	Total	Full Time	Part Time	Total	Grand Total
No College Designated													
Non Degree Seeking (GR) (NDG)	0	0	0	0	10	10	0	0	0	0	2	2	12
Non Degree Seeking (UG) (NDS)	0	64	64	0	0	0	0	0	0	0	0	0	64
Post Degree Studies (PDS)	0	11	11	0	0	0	0	0	0	0	0	0	11
Total No College Designated	**0**	**75**	**75**	**0**	**10**	**10**	**0**	**0**	**0**	**0**	**2**	**2**	**87**
College of Business													
Accounting (BACC)	39	2	41	4	3	7	0	0	0	0	0	0	48
Economics (BEC)	8	0	8	0	0	0	0	0	0	0	0	0	8
Engineering Management (BEM)	65	2	67	0	0	0	0	0	0	0	0	0	67
Finance (BFIN)	51	1	52	0	0	0	0	0	0	0	0	0	52
General Business (BGN)	41	0	41	0	0	0	0	0	0	0	0	0	41
Business Administration (BMBA)	0	0	0	25	16	41	0	0	0	0	0	0	41
Engineering Management (BMEM)	0	0	0	6	3	9	0	0	0	0	0	0	9
Management (BMGT)	44	5	49	0	0	0	0	0	0	0	0	0	49
Management Information Systems (BMIS)	29	0	29	0	0	0	0	0	0	0	0	0	29
Marketing (BMKT)	28	2	30	0	0	0	0	0	0	0	0	0	30
Applied Natural Resource Econ. (BNRE)	0	0	0	1	0	1	0	0	0	0	0	0	1
Forensic Accounting (CFA)	0	0	0	0	1	1	0	0	0	0	0	0	1
Data Science (IDS)	0	0	0	2	1	3	0	0	0	0	0	0	3
Total College of Business	**305**	**12**	**317**	**38**	**24**	**62**	**0**	**0**	**0**	**0**	**0**	**0**	**379**
College of Computing													
Cybersecurity (CCY)	75	1	76	0	0	0	0	0	0	0	0	0	76
General Computing (CGN)	17	0	17	0	0	0	0	0	0	0	0	0	17
Health Informatics (CHI)	0	0	0	3	2	5	0	0	0	0	4	4	9
Computational Science & Engrg (EPD5)	0	0	0	3	1	4	0	0	0	0	0	0	4
Data Science (IDS)	0	0	0	20	1	21	0	0	0	0	0	0	21
Data Science Foundations (IDSF)	0	0	0	0	1	1	0	0	0	0	0	0	1
Computer Science (SCS)	432	16	448	38	8	46	0	0	0	0	0	0	494
Cybersecurity (SCSC)	0	0	0	2	3	5	0	0	0	0	0	0	5
Software Engineering (SSEN)	102	4	106	0	0	0	0	0	0	0	0	0	106
Computer Network & System Admn (TCSA)	63	2	65	0	0	0	0	0	0	0	0	0	65
Electrical Eng Tech (TEET)	27	2	29	0	0	0	0	0	0	0	0	0	29
Total College of Computing	**716**	**25**	**741**	**66**	**16**	**82**	**0**	**0**	**0**	**0**	**4**	**4**	**827**
College of Engineering													
Aerodynamics (AERC)	0	0	0	0	0	0	0	0	0	0	1	1	1
Adv Electric Power Engineering (CAEP)	0	0	0	0	0	0	0	0	0	0	1	1	1
Electric Power Engineering (CEPE)	0	1	1	0	0	0	0	0	0	0	0	0	1
Hybrid Elec. Drive Vehicle Eng (CHEV)	0	0	0	0	0	0	0	0	0	0	5	5	5
Manufacturing Engineering (CME)	0	0	0	0	0	0	0	0	0	0	3	3	3
Natrl Hazds & Disaster Rsk Red (CNHD)	0	0	0	0	1	1	0	0	0	0	1	1	2
Struc Eng: Advanced Analysis (CSEA)	0	0	0	0	0	0	0	0	0	0	1	1	1
Struc Eng: Timber Bldg Design (CSET)	0	0	0	0	1	1	0	0	0	0	1	1	2
Vehicle Dynamics (CVD)	0	0	0	0	0	0	0	0	0	0	1	1	1
Water Resources Modeling (CWRM)	0	0	0	0	0	0	0	0	0	0	3	3	3
Applied Geophysics (EAG)	10	0	10	0	0	0	0	0	0	0	0	0	10
Biomedical Engineering (EBE)	261	10	271	21	0	21	0	0	0	0	0	0	292
Engineering (EBS)	16	2	18	0	0	0	0	0	0	0	0	0	18
Civil Engineering (ECE)	298	10	308	35	5	40	0	0	0	0	15	15	363
Geospatial Engineering (ECGE)	18	2	20	0	0	0	0	0	0	0	0	0	20
Chemical Engineering (ECM)	338	23	361	28	1	29	0	0	0	0	0	0	390
Computer Engineering (ECP)	259	6	265	7	2	9	0	0	0	0	0	0	274
Electrical & Computer Engineer (EECE)	0	0	0	30	6	36	0	0	0	0	10	10	46
Electrical Engineering (EEE)	358	16	374	30	2	32	0	0	0	0	12	12	418
Environmental Engineering (EEN)	182	7	189	15	1	16	0	0	0	0	0	0	205
Geological Engineering (EGE)	22	0	22	4	6	10	0	0	0	0	0	0	32
Geology (EGL)	25	2	27	16	9	25	0	0	0	0	0	0	52
General Engineering (EGN)	178	2	180	0	0	0	0	0	0	0	0	0	180
Geophysics (EGP)	0	0	0	9	1	10	0	0	0	0	0	0	10
Engineering (EGR)	0	0	0	0	2	2	0	0	0	0	1	1	3
Mechanical Engineering (EME)	1,146	57	1,203	141	16	157	0	0	0	0	20	20	1,380
Mining Engineering (EMG)	11	1	12	3	1	4	0	0	0	0	0	0	16
Materials Science and Engrg (EMSE)	84	9	93	21	11	32	0	0	0	0	6	6	131
Engineering - Environmental (EPD2)	0	0	0	10	1	11	0	0	0	0	0	0	11
Computational Science & Engrg (EPD5)	0	0	0	3	1	4	0	0	0	0	0	0	4
Robotics Engineering (ERE)	33	0	33	0	0	0	0	0	0	0	0	0	33
Atmospheric Sciences (IAS)	0	0	0	3	0	3	0	0	0	0	0	0	3
Automotive Systems & Controls (IASC)	0	0	0	1	0	1	0	0	0	0	4	4	5
Safety & Sec of Auton CP Sys (ISSC)	0	0	0	0	0	0	0	0	0	0	1	1	1
Mechanical Eng-Eng Mechanics (MEEM)	0	0	0	78	14	92	0	0	0	1	23	24	116
Integrated Geospatial Tech (TGT)	0	0	0	2	0	2	0	0	0	0	4	4	6
Mechanical Engineering Tech (TMET)	131	11	142	0	0	0	0	0	0	0	0	0	142
Surveying Engineering (TSE)	2	0	2	0	0	0	0	0	0	0	0	0	2
Total College of Engineering	**3,372**	**159**	**3,531**	**457**	**81**	**538**	**0**	**0**	**0**	**1**	**113**	**114**	**4,183**

2023 Five-Year Capital Outlay Plan
Michigan Technological University

III. Staffing and Enrollment

Enrollment Distribution by College and Major

	Standard Learning						Online Learning						
	Undergraduate			Graduate			Undergraduate			Graduate			
	Full Time	Part Time	Total	Full Time	Part Time	Total	Full Time	Part Time	Total	Full Time	Part Time	Total	Grand Total
College of Forest Resources and Environmental Science													
Computational Science & Engrg (EPD5)	0	0	0	1	0	1	0	0	0	0	0	0	1
Applied Ecology (FAE)	0	0	0	10	3	13	0	0	0	0	0	0	13
App Ecol & Environ Sci (FES)	68	1	69	0	0	0	0	0	0	0	0	0	69
Forest Ecology & Mgmt (FFEM)	0	0	0	4	4	8	0	0	0	0	0	0	8
Forestry (FFR)	82	2	84	2	1	3	0	0	0	0	0	0	87
Forest Science (FFS)	0	0	0	14	5	19	0	0	0	0	0	0	19
Geographic Information Science (FGIS)	0	0	0	5	3	8	0	0	0	0	0	0	8
Forestry (FMF)	0	0	0	7	1	8	0	0	0	0	0	0	8
For Molec Genetics & Biotec (FMGB)	0	0	0	5	0	5	0	0	0	0	0	0	5
Natural Resources Management (FNRM)	6	0	6	0	0	0	0	0	0	0	0	0	6
Sustainable Bioproducts (FSB)	4	0	4	0	0	0	0	0	0	0	0	0	4
Wildlife Ecology & Cons (FWEC)	56	1	57	0	0	0	0	0	0	0	0	0	57
Wildlife Ecology & Mgmt (FWEM)	14	0	14	0	0	0	0	0	0	0	0	0	14
Total College of Forest Resources and Environmental Science	**230**	**4**	**234**	**48**	**17**	**65**	**0**	**0**	**0**	**0**	**0**	**0**	**299**
Interdisciplinary Programs													
Mechatronics (IME)	0	0	0	23	5	28	0	0	0	0	0	0	28
Mechatronics (IMX)	19	0	19	0	0	0	0	0	0	0	0	0	19
Construction Management (TCMG)	50	2	52	0	0	0	0	0	0	0	0	0	52
Total Interdisciplinary Programs	**69**	**2**	**71**	**23**	**5**	**28**	**0**	**0**	**0**	**0**	**0**	**0**	**99**
College of Sciences & Arts													
Computational Science & Engrg (EPD5)	0	0	0	2	1	3	0	0	0	0	0	0	3
Atmospheric Sciences (IAS)	0	0	0	5	0	5	0	0	0	0	0	0	5
Biochemistry/Molecular Biology (IBMB)	0	0	0	8	1	9	0	0	0	0	0	0	9
Data Science (IDS)	0	0	0	1	0	1	0	0	0	0	0	0	1
App. Cognitive Sci & Human Fac (SACS)	0	0	0	17	8	25	0	0	0	0	0	0	25
Humanities (SAH)	1	0	1	0	0	0	0	0	0	0	0	0	1
Anthropology (SANT)	9	0	9	0	0	0	0	0	0	0	0	0	9
Applied Physics (SAP)	17	0	17	17	0	17	0	0	0	0	0	0	34
Applied Statistics (SAST)	0	0	0	0	1	1	0	0	0	0	66	66	67
Bioinformatics (SBI)	12	1	13	0	0	0	0	0	0	0	0	0	13
Biological Sciences (SBL)	60	0	60	32	6	38	0	0	0	0	0	0	98
Comp Chemistry & Chem Infrmtcs (SCCC)	5	0	5	0	0	0	0	0	0	0	0	0	5
Communication, Culture & Media (SCCM)	15	3	18	0	0	0	0	0	0	0	0	0	18
Chemistry (SCH)	41	2	43	26	3	29	0	0	0	0	0	0	72
Pharmaceutical Chemistry (SCHP)	11	0	11	0	0	0	0	0	0	0	0	0	11
Ecology & Evolutionary Biology (SEEB)	26	0	26	0	0	0	0	0	0	0	0	0	26
Environmental & Energy Policy (SEEP)	0	0	0	16	6	22	0	0	0	0	0	0	22
Theatre & Electr. Media Perf. (SEMP)	7	0	7	0	0	0	0	0	0	0	0	0	7
English (SEN)	10	1	11	0	0	0	0	0	0	0	0	0	11
Exercise Science (SESC)	60	1	61	0	0	0	0	0	0	0	0	0	61
Audio Production & Technology (SFAT)	19	0	19	0	0	0	0	0	0	0	0	0	19
Theatre & Entertain Tech (BS) (SFET)	19	0	19	0	0	0	0	0	0	0	0	0	19
Sound Design (SFSD)	31	4	35	0	0	0	0	0	0	0	0	0	35
General Sciences and Arts (SGSA)	31	1	32	0	0	0	0	0	0	0	0	0	32
Human Biology (SHB)	48	0	48	0	0	0	0	0	0	0	0	0	48
Indust Heritage & Archaeology (SIHA)	0	0	0	8	6	14	0	0	0	0	0	0	14
Kinesiology (SKIN)	0	0	0	3	1	4	0	0	0	0	0	0	4
Integrative Physiology (SKIP)	0	0	0	4	1	5	0	0	0	0	0	0	5
Mathematics (SMA)	49	0	49	0	0	0	0	0	0	0	0	0	49
Mathematical Sciences (SMAG)	0	0	0	13	1	14	0	0	0	0	0	0	14
Biochem & Molec Biology-Bio Sc (SMBB)	34	0	34	0	0	0	0	0	0	0	0	0	34
Biochem & Molec Biology-Chem (SMBC)	21	0	21	0	0	0	0	0	0	0	0	0	21
Mathematics & Computer Science (SMCS)	5	0	5	0	0	0	0	0	0	0	0	0	5
Medical Laboratory Science (SML)	57	2	59	0	0	0	0	0	0	0	0	0	59
Physics (BA) (SPA)	4	0	4	0	0	0	0	0	0	0	0	0	4
Physics (SPH)	48	2	50	27	0	27	0	0	0	0	0	0	77
Psychology (SPSY)	47	0	47	0	0	0	0	0	0	0	0	0	47
Rhetoric, Theory and Culture (SRTC)	0	0	0	20	10	30	0	0	0	0	0	0	30
Sports and Fitness Management (SSFM)	12	1	13	0	0	0	0	0	0	0	0	0	13
History (SSH)	8	1	9	0	0	0	0	0	0	0	0	0	9
Social Sciences (SSS)	11	2	13	0	0	0	0	0	0	0	0	0	13
Sustainability Sci and Society (SSSU)	29	1	30	0	0	0	0	0	0	0	0	0	30
Statistics (SST)	13	1	14	17	0	17	0	0	0	0	0	0	31
Scientific & Tech Comm (BA) (STA)	3	0	3	0	0	0	0	0	0	0	0	0	3
Scientific & Tech Comm (BS) (STC)	18	1	19	0	0	0	0	0	0	0	0	0	19
Total College of Sciences & Arts	**781**	**24**	**805**	**216**	**45**	**261**	**0**	**0**	**0**	**0**	**66**	**66**	**1,132**
University Total	**5,473**	**301**	**5,774**	**848**	**198**	**1,046**	**0**	**0**	**0**	**1**	**185**	**186**	**7,006**

Projected Enrollment - Fall 2014 to Fall 2027														
Year (Fall)	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
	(Actual)	(Actual)	(Actual)	(Actual)	(Actual)	(Actual)	(Actual)	(Prelim)						
University Enrollment	7,104	7,242	7,270	7,319	7,203	7,041	6,875	7,006	7,250	7,543	7,760	7,954	8,122	8,365
Graduate Non-Degree	22	30	23	37	48	43	28	39	22	23	24	26	27	28
Masters Enrollment	852	936	904	852	781	731	703	679	775	814	855	897	942	970
Doctoral Enrollment	568	555	514	513	546	503	502	514	553	581	610	641	673	693
Graduate Enrollment	1,442	1,521	1,441	1,402	1,375	1,277	1,233	1,232	1,350	1,418	1,489	1,564	1,642	1,691
Undergraduate Enrollment	5,662	5,721	5,829	5,917	5,828	5,764	5,642	5,774	5,900	6,125	6,271	6,390	6,480	6,674

Note: Includes online learning.

Enrollment by Class - Fall 2014 to Fall 2021 (Preliminary)								
	Fall 2014	**Fall 2015**	**Fall 2016**	**Fall 2017**	**Fall 2018**	**Fall 2019**	**Fall 2020**	**Fall 2021 (Prelim)**
Undergraduate								
Freshman	1,435	1,466	1,560	1,553	1,374	1,401	1,300	1,565
Sophomore	1,226	1,254	1,258	1,290	1,298	1,180	1,231	1,172
Junior	1,152	1,203	1,222	1,242	1,282	1,262	1,217	1,198
Senior	1,668	1,640	1,658	1,731	1,774	1,805	1,802	1,743
Total Undergraduate	**5,481**	**5,563**	**5,698**	**5,816**	**5,728**	**5,648**	**5,550**	**5,678**
Graduate								
Master's	805	883	858	809	735	639	557	547
Doctoral	547	529	493	494	520	478	475	484
Total Graduate	**1,352**	**1,412**	**1,351**	**1,303**	**1,255**	**1,117**	**1,032**	**1,031**
Total Standard Degree Seeking	**6,833**	**6,975**	**7,049**	**7,119**	**6,983**	**6,765**	**6,582**	**6,709**
Other Standard Learning								
Special & Unclassified	123	100	86	69	65	80	54	64
Post Graduate	58	57	44	32	35	36	38	32
Non-degree Graduate	12	23	19	24	33	31	13	15
Total Other Standard Students	**193**	**180**	**149**	**125**	**133**	**147**	**105**	**111**
On-Line Learning	**78**	**87**	**72**	**75**	**87**	**129**	**188**	**186**
Total All Students	**7,104**	**7,242**	**7,270**	**7,319**	**7,203**	**7,041**	**6,875**	**7,006**

Faculty and Staff to Student Ratios for Major Academic Colleges - Fiscal Year 2020-21						
	Faculty FTE	**Staff FTE**	**Student FYES**	**Faculty to Students Ratio**	**Staff to Students Ratio**	**Faculty and Staff to Students Ratio**
College of Engineering	161.0	131.1	2,139.4	1:13	1:16	1:7
College of Science & Arts	166.4	69.3	2,727.3	1:16	1:39	1:12
Total University*	414.2	1,005.7	6,024.6	1:15	1:6	1:4

*Also includes Colleges of Business, Forest Resources and Environmental Science, Computing, and all non-academic departments.

Note: FTE and FYES is based on the academic year. FTE excludes temporary nonrepresented employees.

Number of Class Sections with Students Enrolled by Level* - Fall 2021 (Preliminary)								
Undergraduate	**2-9**	**10-19**	**20-29**	**30-39**	**40-49**	**50-99**	**100+**	**Total**
Class Sections	289	253	240	101	63	124	33	1,103
Class Sub-Sections	80	219	73	28	22	26	0	448
Graduate	**2-9**	**10-19**	**20-29**	**30-39**	**40-49**	**50-99**	**100+**	**Total**
Class Sections	91	38	7	2	2	1	0	141
Class Sub-Sections	33	3	0	0	0	0	0	36

* As defined by Common Data Set standards

Online Learning Projections 2021-22 through 2026-27

Year	Type of Students[1]	Projected #	G/UG%[2]
2021-22	A. On Campus Online	1,071	21/79
	B. Off Campus Online	1,066	31/69
	C. Corporate Off Campus	5	100/0
	D. Dual-Enrollment Secondary School	8	0/100
2022-23	A. On Campus Online	1,125	24/76
	B. Off Campus Online	1,119	34/66
	C. Corporate Off Campus	5	100/0
	D. Dual-Enrollment Secondary School	8	0/100
2023-24	A. On Campus Online	1,181	27/73
	B. Off Campus Online	1,175	37/63
	C. Corporate Off Campus	6	100/0
	D. Dual-Enrollment Secondary School	9	0/100
2024-25	A. On Campus Online	1,240	30/70
	B. Off Campus Online	1,234	40/60
	C. Corporate Off Campus	6	100/0
	D. Dual-Enrollment Secondary School	9	0/100
2025-26	A. On Campus Online	1,302	33/67
	B. Off Campus Online	1,295	43/57
	C. Corporate Off Campus	6	100/0
	D. Dual-Enrollment Secondary School	10	0/100
2026-27	A. On Campus Online	1,367	36/64
	B. Off Campus Online	1,360	46/54
	C. Corporate Off Campus	6	100/0
	D. Dual-Enrollment Secondary School	10	0/100

Notes:

1 A type- On Campus OnLine- Students taking at least one class using Online technology.

B type- Off Campus OnLine- Students taking at least one class using Online technology.

C type- Current corporate contract model- GM, Ford, and others.

D type- Dual enrollment with secondary school students with targeted service and recruiting effort. Usually one course a term.

2 G/UG% Graduate/ Undergraduate %

#	BUILDING	TYPE	GROSS	NET	RATIO
1	Administration Building	Administrative	73,389	50,500	1.45
2	Electrical Substation	Service	786	545	1.44
3	Michigan Tech Lakeshore Center	Administrative	61,365	39,400	1.56
4	ROTC Building	Classroom - 70%, Offices - 30%	21,584	14,824	1.46
5	Academic Offices Building	Offices	27,405	17,869	1.53
6	Annex Building	Science	10,956	9,042	1.21
7	Electrical Energy Resources	Engineering	162,140	108,843	1.49
8	DOW Envir Sciences & Eng Bldg	Engineering - 70%, Biology - 30%	184,180	110,459	1.67
9	Alumni House	Administrative	7,784	4,790	1.63
10	Rozsa Performing Arts & Educ	Auditorium	80,000	51,309	1.56
11	Walker - Arts & Humanities	Classroom	87,094	49,176	1.77
12	Minerals & Materials Engr Bldg	Engineering - 69%, Laboratory 31%	263,671	144,670	1.82
13	Center for Diversity and Inclusion	Administrative	4,259	3,544	1.20
14	Grover C. Dillman Hall	Engineering - 75%, Classroom - 25%	90,959	58,809	1.55
15	Fisher Hall	Science - 63%, Classroom - 37%	112,100	67,123	1.67
16	Public Safety & Police Services Building	Administrative	2,755	2,078	1.33
17	J.R. Van Pelt Library	Library	130,031	105,824	1.23
18	U.J. Noblet Forestry Building	Science - 70%, Laboratory - 30%	95,337	71,425	1.33
19	Chemical Sciences & Engr Building	Engineering - 32%, Chemistry - 9%, Laboratory - 31%,	162,500	94,921	1.71
20	R.L. Smith (MEEM) Building	Engineering - 49%, Laboratory - 23%, Classroom - 28%	162,500	96,108	1.69
24	Student Development Complex	Gymnasium	343,393	235,274	1.46
25	Kearly Stadium Press Box	Gymnasium	4,416	3,445	1.28
26	MTN Uplink Equipment Bldg	Service	265	120	2.21
28	Kanwal and Ann Rekhi Hall	Science - 86%, Classroom - 14%	51,439	39,352	1.31
30	Little Huskies Child Care	Dormitory	4,600	4,096	1.12
31	Douglass Houghton Hall	Dormitory	92,500	55,956	1.65
32	Daniell Heights Apartments	Dormitory	220,700	174,977	1.26
33	Daniell Heights Maintenance	Service	1,152	1,081	1.07
34	Memorial Union Building	Administrative	92,935	63,387	1.47
35	Daniell Heights Nursery	Dormitory	2,400	2,190	1.10
36	21725 Woodland Road House	Dormitory	2,452	2,269	1.08
37	Wadsworth Hall	Dormitory	300,239	185,647	1.62

#	BUILDING	TYPE	GROSS	NET	RATIO
38	West McNair Hall	Dormitory	51,522	32,516	1.58
39	McNair Hall Food Services	Dining Hall	18,000	11,683	1.54
40	East McNair Hall	Dormitory	71,300	45,686	1.56
41	Central Energy Plant	Service	12,780	10,386	1.23
42	Facilities Management Storage	Warehouse	5,680	5,322	1.07
44	Facilities Building	Service	21,176	16,377	1.29
45	Kettle-Gundlach House	Dormitory	5,096	4,072	1.25
46	Tech Trails Waxing Center	Gymnasium	4,536	3,629	1.25
47	217 East Street House	Dormitory	3,191	3,135	1.02
48	Hillside Place	Dormitory	77,926	56,330	1.38
49	Property Storage	Warehouse	4,872	4,644	1.05
50	Gates Tennis Center	Gymnasium	29,610	28,737	1.03
51	207 East Street House	Administration	2,972	2,573	1.16
52	PLGC Clubhouse	Gymnasium	4,465	4,271	1.05
53	Mont Ripley Ski Hill	Gymnasium	2,100	1,987	1.06
54	Mont Ripley Ski Chalet	Gymnasium	4,600	3,644	1.26
55	Mont Ripley Storage	Warehouse	4,080	3,240	1.26
56	Daniell Heights Storage 56	Warehouse	1,261	1,189	1.06
57	209 East Street House	Dormitory	2,891	1,985	1.46
58	PLGC Maintenance -1	Warehouse	3,276	2,621	1.25
59	PLGC Maintenance -2	Warehouse	625	502	1.25
60	PLGC Cart Storage -A	Warehouse	4,500	3,600	1.25
61	PLGC Cart Storage - B	Warehouse	3,600	2,800	1.29
62	PLGC Cart Storage -C	Warehouse	4,500	3,600	1.25
63	PLGC Maintenance - 3	Service	1,040	664	1.57
64	PLGC Pump House	Service	144	115	1.25
65	Daniell Heights Storage 65	Warehouse	3,200	3,081	1.04
66	Tech Trails Timing Building	Gymnasium	192	165	1.16
67	Tech Trails Warming Building	Gymnasium	280	247	1.13
68	SDC Storage	Warehouse	1,800	1,711	1.05
69	KRC Engineering Design Center	Engineering	13,998	6,751	2.07
70	KRC Scientific & Admin Offices	Offices	10,037	7,141	1.41
71	KRC Machine & Vehicle Shops	Service	4,000	3,823	1.05

#	BUILDING	TYPE	GROSS	NET	RATIO
72	KRC Vehicle Service Bldg T3	Service	5,600	5,421	1.03
73	KRC Vehicle Storage Bldg T4	Warehouse	4,000	3,861	1.04
74	KRC Engineering Laboratories	Engineering - 17%, Laboratory - 83%	4,665	3,362	1.39
75	KRC Special Projects Facility	Engineering	1,000	787	1.27
76	KRC Support Services Facility	Service	1,000	894	1.12
77	KRC Water Truck Storage	Warehouse	1,600	1,490	1.07
78	KRC Eng Support Facil Bendix	Engineering	5,152	4,786	1.08
79	KRC Chrysler Support Fac II	Engineering	4,000	3,746	1.07
80	KRC Cold Storage Building	Warehouse	4,000	3,828	1.04
81	Power Generation Building	Service	3,432	3,151	1.09
82	21610 Woodland Road House	Dormitory	5,702	4,708	1.21
84	Harold Meese Center	Science - 88%, Classroom - 12%	15,020	10,292	1.46
88	DPSPS/EMS Building	Warehouse	1,000	922	1.08
89	Tech Trails Maintenance	Warehouse	1,200	1,131	1.06
90	Sands Pilot Plant	Engineering	11,520	10,805	1.07
92	Advanced Energy Research Building	Engineering - 15%, Laboratory - 85%	4,128	3,844	1.07
93	Fish Hatchery Building	Science	1,360	1,100	1.24
94	AMJOCH Observatory	Science	433	352	1.23
95	Advanced Technology Development	Administrative - 12%, Engineering - 60%, Science - 15%	25,097	20,676	1.21
96	SDC Annex Building	Warehouse	2,786	2,700	1.03
100	Great Lakes Research Center	Laboratory - 27%, Science - 73%	54,778	35,936	1.52
101	Tech Trails Storage	Warehouse	672	646	1.04
102	Advanced Power Systems Research	Laboratory - 93%, Office - 7%	56,332	53,114	1.06
103	A.E. Seaman Mineral Museum	Library	9,000	8,234	1.09
104	Mineral Museum Storage	Warehouse	2,340	1,983	1.18
105	KRC Cold Storage Building	Warehouse	1,600	1,403	1.14
106	Sands Storage	Warehouse	576	529	1.09
107	212 East Street House	Dormitory	3,068	2,406	1.28
108	KRC Inspection Pit	Service	416	375	1.11
109	Mt Ripley Pump House	Service	570	529	1.08
110	214 East Street House	Dormitory	2,941	1,843	1.60
111	46645 US-41 House	Dormitory	5,721	4,577	1.25
112	Facilities Storage	Warehouse	6,600	6,447	1.02

#	BUILDING	TYPE	GROSS	NET	RATIO
201	FCF Hemlock Residence	Dormitory	2,160	1,728	1.25
202	FCF Sassafras Residence	Dormitory	1,190	952	1.25
203	FCF Elm Residence	Dormitory	1,348	1,078	1.25
204	FCF Birdseye Residence	Dormitory	1,581	1,265	1.25
205	FCF Spruce Residence	Dormitory	1,462	1,170	1.25
206	FCF Tamarack Residence	Dormitory	1,779	1,423	1.25
207	FCF Birch Residence	Dormitory	1,392	1,114	1.25
208	FCF Basswood Residence	Dormitory	1,515	1,212	1.25
209	FCF Cedar Residence	Dormitory	1,470	1,176	1.25
210	FCF Beech Residence	Dormitory	1,269	1,015	1.25
211	FCF Ash Residence	Dormitory	2,114	1,691	1.25
212	FCF Balsam Residence	Dormitory	864	691	1.25
213	FCF Pump House	Service	1,070	636	1.68
214	FCF Sawmill Museum	Library	6,720	5,376	1.25
215	FCF 8-Car Garage	Garage	1,730	1,384	1.25
216	FCF Dorm 2	Dormitory	2,066	1,327	1.56
217	FCF Classroom 1	Classroom	2,480	1,957	1.27
218	FCF Sauna Building	Dormitory	864	691	1.25
219	FCF Classroom 2	Classroom	1,150	920	1.25
220	FCF Recreation	Dormitory	1,150	1,068	1.08
221	FCF Computer Lab	Classroom	1,150	920	1.25
222	FCF Classroom 3	Classroom	1,150	1,089	1.06
223	FCF Dorm 1	Dormitory	11,250	9,000	1.25
224	FCF Carriage House	Dormitory	2,695	2,156	1.25
225	FCF Storage 3	Warehouse	255	204	1.25
226	FCF Storage 2	Warehouse	2,320	1,856	1.25
227	FCF Storage 1	Warehouse	260	208	1.25
229	FCF Lumber Storage	Warehouse	2,520	2,016	1.25
230	FCF 9-Car Garage	Garage	4,180	3,344	1.25
231	FCF Maintenance	Service	9,313	8,703	1.07
233	FCF Main Office	Office	3,200	2,920	1.10
235	FCF Wellhouse	Service	228	183	1.25
236	FCF Reservoir Shelter	Service	768	614	1.25

Michigan Technological University
Room Utilization Reports
Fall 2020, Monday-Friday, 8:00 AM - 10:00 AM

#	Building No.	Building	Room	Room Use	Sqft	Seats	Classes	Students	Classroom Utilization	Credit Hrs	20 Hr Utilization
1	5	Acad Ofc	201	ClsRm	610	10	2	16	38%	6	30%
2	19	Chem-Sci	102	ClsRm	1,162	66	1	14	100%	3	15%
3	19		103	ClsLab	1,308	20	2	13	36%	6	30%
4	19		106	ClsRm	565	30	1	9	100%	3	15%
5	19		108	ClsLab	1,162	44	2	58	97%	6	30%
6	19		0501N	ClsLab	976	24	2	39	98%	6	30%
7	19		0501S	ClsLab	976	24	2	38	95%	6	30%
8	19		502	ClsLab	1,124	24	2	30	75%	6	30%
9	19		0503N	ClsLab	966	24	2	39	98%	6	30%
10	19		0503S	ClsLab	966	24	2	38	95%	6	30%
11	19		0601N	ClsLab	1,048	28	2	25	89%	6	30%
12	19		0601S	ClsLab	1,048	28	2	20	71%	6	30%
13	8	Dow	610	ClsRm	890	26	2	12	57%	3	15%
14	8		641	ClsRm	2,923	250	5	244	94%	11	55%
15	8		642	ClsRm	1,601	84	2	79	71%	6	30%
16	7	EERC	100	ClsRm	1,307	82	2	40	89%	4	20%
17	7		103	ClsRm	2,396	151	2	95	101%	7	35%
18	7		214	ClsRm	983	65	2	14	58%	6	30%
19	7		229	ClsRm	1,048	65	3	46	85%	7	35%
20	7		315	ClsRm	553	36	1	8	50%	3	15%
21	7		316	ClsRm	823	60	1	10	67%	1	5%
22	7		328	ClsLab	1,140	24	2	30	100%	4	20%
23	7		427	ClsLab	1,000	24	2	18	95%	2	10%
24	7		0427A	ClsLab	420	8	2	8	100%	2	10%
25	7		431	ClsLab	1,206	16	2	27	82%	5	25%
26	7		622	ClsLab	983	16	1	14	100%	2	10%
27	7		722	ClsLab	978	30	1	13	43%	2	10%
28	15	Fisher	126	ClsRm	593	35	1	9	90%	3	15%
29	15		130	ClsRm	712	44	1	8	33%	4	20%
30	15		131	ClsRm	712	44	1	26	72%	2	10%
31	15		135	ClsRm	5,036	476	4	420	82%	11	55%
32	15		138	ClsRm	1,395	92	3	117	94%	8	40%
33	15		139	ClsRm	2,016	125	4	162	95%	10	50%
34	15		230	ClsRm	579	35	2	6	60%	3	15%
35	15		231	ClsRm	697	44	1	21	88%	2	10%
36	15		325	ClsRm	1,064	72	2	26	65%	4	20%
37	15		328	ClsRm	928	62	2	23	64%	6	30%
38	15		329	ClsRm	1,065	72	2	60	94%	6	30%
39	100	GLRC	102	ClsLab	1,374	28	1	14	93%	3	15%
40	14	Dillman	101	ClsLab	2,187	60	2	31	91%	6	30%
41	14		202	ClsRm	776	36	1	9	100%	3	15%
42	14		203	ClsLab	863	26	2	20	100%	4	20%
43	14		204	ClsRm	761	43	3	45	102%	7	35%
44	14		208	ClsLab	1,559	64	4	62	78%	3	15%
45	14		213	ClsLab	573	12	1	3	50%	3	15%
46	14		214	ClsRm	954	60	2	32	33%	4	20%
47	14		320	ClsRm	1,051	43	1	8	53%	3	15%
48	14		B008	ClsLab	1,495	15	1	13	87%	3	15%

Michigan Technological University
Room Utilization Reports
Fall 2020, Monday-Friday, 8:00 AM - 10:00 AM

#	Building No.	Building	Room	Room Use	Sqft	Seats	Classes	Students	Classroom Utilization	Credit Hrs	20 Hr Utilization
49	84	Meese	109	ClsRm	680	25	1	14	140%	3	15%
50	84		110	ClsRm	564	25	2	24	83%	6	30%
51	28	Rekhi	112	ClsLab	775	20	3	59	68%	6	30%
52	28		214	ClsRm	1,328	48	2	28	64%	4	20%
53	28		G005	ClsRm	1,253	54	2	50	72%	5	25%
54	12	M&M Bldg	211	ClsLab	338	10	1	10	100%	3	15%
55	12		U111	ClsRm	723	30	2	14	58%	6	30%
56	12		U113	ClsRm	1,069	63	1	26	76%	2	10%
57	12		U115	ClsRm	2,540	240	6	180	80%	11	55%
58	12		U205	ClsRm	421	26	2	7	23%	3	15%
59	20	MEEM	112	ClsRm	1,652	115	2	72	82%	6	30%
60	20		120	ClsLab	2,630	72	4	238	99%	7	35%
61	20		202	ClsLab	951	16	2	39	100%	4	20%
62	20		302	ClsRm	1,129	48	2	32	100%	4	20%
63	20		305	ClsLab	1,175	16	2	26	87%	4	20%
64	20		402	ClsRm	1,265	48	2	36	82%	6	30%
65	20		403	ClsRm	1,131	48	2	36	80%	3	15%
66	20		406	ClsRm	1,130	40	3	47	59%	6	30%
67	20		502	ClsLab	928	16	1	8	50%	2	10%
68	20		0502A	ClsLab	712	16	3	39	93%	6	30%
69	20		505	ClsLab	1,588	16	1	14	93%	2	10%
70	20		701	ClsLab	867	16	3	42	100%	6	30%
71	20		1101	ClsLab	1,224	19	2	35	88%	4	20%
72	20		1108	ClsLab	1,116	24	1	24	100%	2	10%
73	24	SDC	237	ClsRm	789	48	3	53	72%	5	25%
74	24		238	ClsRm	705	40	3	29	47%	5	25%
75	18	Noblet	108	ClsLab	692	24	1	17	85%	3	15%
76	18		143	ClsRm	616	40	2	17	55%	4	20%
77	18		144	ClsRm	1,689	26	3	49	94%	9	45%
78	18		G002	ClsRm	1,768	125	2	43	108%	6	30%
79	18		G029	ClsLab	1,104	32	1	9	82%	4	20%
80	37	Wads	G011W	ClsRm	2,385	128	10	200	100%	8	40%
81	11	Walker	109	ClsRm	792	36	2	36	95%	6	30%
82	11		0120A	ClsRm	904	30	2	27	68%	6	30%
83	11		144	ClsRm	634	25	1	6	60%	3	15%
84	11		210	ClsLab	1,426	40	1	19	95%	3	15%
Grand Totals:			Rooms: 84		97,244	4,416	176	3,717	83%	402	24%

Michigan Technological University
Room Utilization Reports
Fall 2020, Monday-Friday, 10:00 AM - 3:00 PM

#	Building No.	Building	Room	Room Use	Sqft	Seats	Classes	Students	Classroom Utilization	Credit Hrs	25 Hr Utilization
1	5	Acad Ofc	201	ClsRm	610	10	3	24	53%	9	36%
2	19	Chem-Sci	101	ClsRm	1,184	66	1	9	16%	2	8%
3	19		102	ClsRm	1,162	66	4	64	63%	12	48%
4	19		103	ClsLab	1,308	20	4	48	67%	12	48%
5	19		0104A	ClsRm	582	32	2	5	50%	3	12%
6	19		0104B	ClsRm	594	32	1	11	92%	3	12%
7	19		108	ClsLab	1,162	44	4	63	56%	12	48%
8	19		211	ClsRm	1,155	55	1	7	70%	3	12%
9	19		215	ClsRm	584	30	1	12	67%	3	12%
10	19		408	ClsLab	1,755	12	1	9	90%	6	24%
11	19		0501N	ClsLab	976	24	2	35	88%	6	24%
12	19		0501S	ClsLab	976	24	2	34	85%	6	24%
13	19		502	ClsLab	1,124	24	1	16	80%	3	12%
14	19		0503N	ClsLab	966	24	2	40	100%	6	24%
15	19		0503S	ClsLab	966	24	2	37	93%	6	24%
16	19		504	ClsLab	1,100	24	2	34	94%	6	24%
17	19		0601N	ClsLab	1,048	28	3	41	98%	9	36%
18	19		0601S	ClsLab	1,048	28	3	31	74%	9	36%
19	19		B005	ClsLab	2,473	24	2	96	107%	12	48%
20	8	Dow	420	ClsLab	1,878	15	5	17	74%	2	8%
21	8		610	ClsRm	890	26	6	49	49%	8	32%
22	8		615	ClsLab	643	1	2	26	81%	6	24%
23	8		641	ClsRm	2,923	250	7	425	90%	22	88%
24	8		642	ClsRm	1,601	84	6	173	79%	18	72%
25	8		707	ClsLab	1,198	24	1	14	93%	2	8%
26	8		710	ClsLab	1,287	24	6	54	90%	9	36%
27	8		711	ClsLab	937	16	4	55	92%	8	32%
28	7	EERC	100	ClsRm	1,307	82	8	282	88%	19	76%
29	7		103	ClsRm	2,396	151	6	311	92%	18	72%
30	7		214	ClsRm	983	65	1	9	75%	2	8%
31	7		216	ClsRm	551	36	1	14	58%	3	12%
32	7		226	ClsRm	683	46	2	15	24%	6	24%
33	7		227	ClsRm	551	36	2	12	75%	4	16%
34	7		229	ClsRm	1,048	65	6	114	66%	11	44%
35	7		314	ClsRm	553	36	1	2	11%	3	12%
36	7		315	ClsRm	553	36	2	19	53%	6	24%
37	7		316	ClsRm	823	60	3	57	88%	9	36%
38	7		328	ClsLab	1,140	24	4	50	89%	6	24%
39	7		330	ClsLab	1,558	42	2	44	100%	3	12%
40	7		421	ClsLab	844	24	1	3	30%	3	12%
41	7		427	ClsLab	1,000	24	7	62	75%	9	36%
42	7		0427A	ClsLab	420	8	4	13	81%	4	16%
43	7		431	ClsLab	1,206	16	3	35	60%	7	28%
44	7		622	ClsLab	983	16	6	81	96%	12	48%
45	7		722	ClsLab	978	30	6	163	91%	12	48%
46	7		723	ClsLab	834	23	3	31	94%	6	24%
47	7		738	ClsLab	1,001	18	2	20	100%	4	16%
48	7		827	ClsLab	983	16	7	94	96%	14	56%

Michigan Technological University
Room Utilization Reports
Fall 2020, Monday-Friday, 10:00 AM - 3:00 PM

#	Building No.	Building	Room	Room Use	Sqft	Seats	Classes	Students	Classroom Utilization	Credit Hrs	25 Hr Utilization
49	15	Fisher	101	ClsRm	937	32	3	34	77%	8	32%
50	15		127	ClsRm	693	35	3	36	69%	9	36%
51	15		129	ClsRm	792	53	3	54	98%	9	36%
52	15		130	ClsRm	712	44	4	36	59%	9	36%
53	15		131	ClsRm	712	44	7	113	73%	18	72%
54	15		132	ClsRm	693	44	7	65	79%	13	52%
55	15		133	ClsRm	693	44	2	30	75%	7	28%
56	15		135	ClsRm	5,036	476	8	811	86%	22	88%
57	15		138	ClsRm	1,395	92	5	264	94%	17	68%
58	15		139	ClsRm	2,016	125	7	370	90%	21	84%
59	15		230	ClsRm	579	35	1	10	33%	3	12%
60	15		231	ClsRm	697	44	6	78	74%	14	56%
61	15		325	ClsRm	1,064	72	7	167	77%	20	80%
62	15		326	ClsRm	1,064	71	7	118	84%	13	52%
63	15		0327B	ClsRm	445	27	2	11	28%	6	24%
64	15		328	ClsRm	928	62	7	167	77%	19	76%
65	15		329	ClsRm	1,065	72	7	146	90%	12	48%
66	100	GLRC	102	ClsLab	1,374	28	4	67	102%	10	40%
67	14	Dillman	101	ClsLab	2,187	60	4	79	68%	9	36%
68	14		202	ClsRm	776	36	2	15	79%	6	24%
69	14		203	ClsLab	863	26	3	43	81%	6	24%
70	14		204	ClsRm	761	43	3	48	62%	8	32%
71	14		211	ClsLab	968	48	5	37	84%	3	12%
72	14		213	ClsLab	573	12	2	10	83%	3	12%
73	14		214	ClsRm	954	60	3	4	21%	6	24%
74	14		320	ClsRm	1,051	43	11	248	89%	21	84%
75	14		B003	ClsLab	988	16	3	50	104%	9	36%
76	14		B008	ClsLab	1,495	15	2	30	100%	6	24%
77	84	Meese	109	ClsRm	680	25	4	23	43%	9	36%
78	28	Rekhi	112	ClsLab	775	20	7	208	90%	14	56%
79	28		113	ClsLab	777	20	3	80	82%	6	24%
80	28		117	ClsLab	1,153	18	1	14	93%	2	8%
81	28		214	ClsRm	1,328	48	10	237	96%	19	76%
82	28		G005	ClsRm	1,253	54	1	34	94%	3	12%
83	28		G009	ClsRm	1,280	48	6	27	39%	15	60%
84	12	M&M	211	ClsLab	338	10	2	20	100%	6	24%
85	12		U106	ClsLab	347	5	3	5	29%	2	8%
86	12		U111	ClsRm	723	30	1	11	92%	3	12%
87	12		U113	ClsRm	1,069	63	12	45	41%	1	4%
88	12		U115	ClsRm	2,540	240	7	317	90%	22	88%
89	12		U205	ClsRm	421	26	2	6	30%	5	20%
90	20	MEEM	111	ClsRm	1,429	96	6	131	71%	11	44%
91	20		112	ClsRm	1,652	115	7	352	98%	19	76%
92	20		120	ClsLab	2,630	72	2	64	98%	3	12%
93	20		202	ClsLab	951	16	5	26	67%	5	20%
94	20		302	ClsRm	1,129	48	9	164	67%	22	88%
95	20		303	ClsRm	1,131	48	6	125	82%	10	40%
96	20		305	ClsLab	1,175	16	4	55	92%	8	32%
97	20		402	ClsRm	1,265	48	4	107	72%	12	48%
98	20		403	ClsRm	1,131	48	7	189	80%	18	72%
99	20		406	ClsRm	1,130	40	4	74	67%	9	36%
100	20		502	ClsLab	928	16	1	10	63%	2	8%

Michigan Technological University
Room Utilization Reports
Fall 2020, Monday-Friday, 10:00 AM - 3:00 PM

#	Building No.	Building	Room	Room Use	Sqft	Seats	Classes	Students	Classroom Utilization	Credit Hrs	25 Hr Utilization
101	20		0502A	ClsLab	712	16	5	54	77%	10	40%
102	20		505	ClsLab	1,588	16	3	41	91%	6	24%
103	20		601	ClsLab	1,980	16	4	30	43%	8	32%
104	20		701	ClsLab	867	16	5	60	86%	10	40%
105	20		1101	ClsLab	1,224	19	3	48	80%	6	24%
106	20		1103	ClsLab	1,092	20	2	41	114%	6	24%
107	20		1106	ClsLab	1,064	24	1	17	85%	3	12%
108	20		1108	ClsLab	1,116	24	3	40	56%	6	24%
109	4	ROTC	101	ClsRm	1,273	47	9	74	48%	10	40%
110	10	Rozsa Ctr	120	ClsRm	1,448	60	1	18	100%	3	12%
111	10		208	ClsLab	1,790	50	2	14	35%	6	24%
112	24	SDC	237	ClsRm	789	48	8	84	50%	13	52%
113	24		238	ClsRm	705	40	3	55	68%	6	24%
114	18	Noblet	108	ClsLab	692	24	2	10	38%	5	20%
115	18		139	ClsLab	618	18	3	22	110%	8	32%
116	18		143	ClsRm	616	40	6	41	84%	9	36%
117	18		144	ClsRm	1,689	26	9	174	102%	19	76%
118	18		146	ClsLab	997	24	2	5	25%	3	12%
119	18		157	ClsLab	954	24	5	47	94%	11	44%
120	18		G002	ClsRm	1,768	125	14	234	94%	24	96%
121	37	Wads	G011W	ClsRm	2,385	128	20	316	88%	15	60%
122	11	Walker	109	ClsRm	792	36	4	66	85%	12	48%
123	11		0120A	ClsRm	904	30	5	66	84%	13	52%
124	11		143	ClsRm	647	25	1	7	70%	3	12%
125	11		144	ClsRm	634	25	3	24	60%	9	36%
126	11		202	ClsLab	1,009	28	2	25	89%	8	32%
127	11		204	ClsLab	745	5	2	10	143%	6	24%
128	11		210	ClsLab	1,426	40	2	37	106%	6	24%
129	11		211	ClsLab	731	15	2	24	100%	6	24%
	Grand Totals:		Rooms: 129		143,525	5,823	528	10,009	81%	1,147	36%

Michigan Technological University
Room Utilization Reports
Fall 2020, Monday-Friday, 3:00 PM - 5:00 PM

#	Building No.	Building	Room	Room Use	Sqft	Seats	Classes	Students	Classroom Utilization	Credit Hrs	20 Hr Utilization
1	19	Chem-Sci	102	ClsRm	1,162	66	1	3	21%	1	5%
2	19		0104A	ClsRm	582	32	2	4	50%	3	15%
3	19		0501N	ClsLab	976	24	3	59	98%	9	45%
4	19		0501S	ClsLab	976	24	3	56	93%	9	45%
5	19		502	ClsLab	1,124	24	2	37	93%	6	30%
6	19		0503N	ClsLab	966	24	3	57	95%	9	45%
7	19		0503S	ClsLab	966	24	3	56	93%	9	45%
8	19		504	ClsLab	1,100	24	3	55	102%	9	45%
9	19		0601N	ClsLab	1,048	28	2	22	79%	6	30%
10	19		0601S	ClsLab	1,048	28	2	23	82%	6	30%
11	19		708	ClsLab	1,592	32	1	6	75%	6	30%
12	8	Dow	420	ClsLab	1,878	15	4	60	92%	8	40%
13	8		610	ClsRm	890	26	2	26	33%	3	15%
14	8		641	ClsRm	2,923	250	2	189	99%	6	30%
15	8		642	ClsRm	1,601	84	1	19	100%	2	10%
16	8		707	ClsLab	1,198	24	2	35	88%	6	30%
17	8		711	ClsLab	937	16	3	30	50%	4	20%
18	7	EERC	100	ClsRm	1,307	82	1	40	80%	3	15%
19	7		103	ClsRm	2,396	151	2	125	73%	4	20%
20	7		216	ClsRm	551	36	1	10	63%	2	10%
21	7		227	ClsRm	551	36	1	4	50%	3	15%
22	7		229	ClsRm	1,048	65	1	10	100%	2	10%
23	7		316	ClsRm	823	60	1	12	120%	2	10%
24	7		328	ClsLab	1,140	24	2	25	104%	4	20%
25	7		330	ClsLab	1,558	42	2	20	71%	4	20%
26	7		421	ClsLab	844	24	1	4	33%	2	10%
27	7		427	ClsLab	1,000	24	3	30	63%	6	30%
28	7		622	ClsLab	983	16	4	53	95%	8	40%
29	7		722	ClsLab	978	30	3	52	58%	6	30%
30	7		723	ClsLab	834	23	3	16	48%	6	30%
31	7		738	ClsLab	1,001	18	4	37	93%	8	40%
32	7		827	ClsLab	983	16	4	50	89%	8	40%
33	15	Fisher	126	ClsRm	593	35	1	7	70%	3	15%
34	15		130	ClsRm	712	44	1	17	77%	2	10%
35	15		133	ClsRm	693	44	1	26	72%	2	10%
36	15		135	ClsRm	5,036	476	4	428	90%	6	30%
37	15		138	ClsRm	1,395	92	5	82	52%	9	45%
38	15		139	ClsRm	2,016	125	3	64	68%	5	25%
39	15		231	ClsRm	697	44	3	36	64%	6	30%
40	15		325	ClsRm	1,064	72	3	34	74%	4	20%
41	15		328	ClsRm	928	62	2	48	100%	6	30%
42	15		329	ClsRm	1,065	72	1	15	150%	2	10%
43	15		B003	ClsLab	689	14	1	15	63%	3	15%
44	14	Dillman	202	ClsRm	776	36	2	8	40%	2	10%
45	14		204	ClsRm	761	43	3	11	20%	4	20%
46	14		208	ClsLab	1,559	64	12	16	13%	1	5%
47	14		213	ClsLab	573	12	2	8	67%	2	10%
48	14		214	ClsRm	954	60	2	11	37%	3	15%
49	14		320	ClsRm	1,051	43	3	47	84%	6	30%
50	28	Rekhi	112	ClsLab	775	20	1	26	100%	2	10%
51	28		113	ClsLab	777	20	1	17	113%	2	10%
52	28		214	ClsRm	1,328	48	3	144	69%	8	40%
53	28		G005	ClsRm	1,253	54	3	61	88%	6	30%

Michigan Technological University
Room Utilization Reports
Fall 2020, Monday-Friday, 3:00 PM - 5:00 PM

#	Building No.	Building	Room	Room Use	Sqft	Seats	Classes	Students	Classroom Utilization	Credit Hrs	20 Hr Utilization
54	12	M&M Bldg	U113	ClsRm	1,069	63	1	3	21%	1	5%
55	12		U115	ClsRm	2,540	240	3	132	83%	10	50%
56	20	MEEM	111	ClsRm	1,429	96	1	48	100%	3	15%
57	20		112	ClsRm	1,652	115	2	81	86%	8	40%
58	20		120	ClsLab	2,630	72	4	233	88%	6	30%
59	20		202	ClsLab	951	16	3	51	100%	6	30%
60	20		302	ClsRm	1,129	48	1	28	88%	3	15%
61	20		303	ClsRm	1,131	48	1	48	100%	3	15%
62	20		305	ClsLab	1,175	16	2	22	73%	4	20%
63	20		403	ClsRm	1,131	48	3	66	54%	9	45%
64	20		502	ClsLab	928	16	1	8	50%	2	10%
65	20		0502A	ClsLab	712	16	1	14	100%	2	10%
66	20		505	ClsLab	1,588	16	1	14	93%	2	10%
67	20		701	ClsLab	867	16	1	13	93%	2	10%
68	20		1103	ClsLab	1,092	20	1	20	100%	3	15%
69	20		1106	ClsLab	1,064	24	3	58	97%	9	45%
70	20		1108	ClsLab	1,116	24	2	28	58%	5	25%
71	4	ROTC	100	ClsLab	3,385	30	8	142	36%	4	20%
72	10	Rozsa Ctr	120	ClsRm	1,448	60	2	24	71%	6	30%
73	10		208	ClsLab	1,790	50	3	60	21%	9	45%
74	18	Noblet	108	ClsLab	692	24	1	6	100%	2	10%
75	18		139	ClsLab	618	18	1	6	100%	2	10%
76	18		143	ClsRm	616	40	2	5	25%	2	10%
77	18		144	ClsRm	1,689	26	1	18	51%	2	10%
78	18		157	ClsLab	954	24	4	23	58%	8	40%
79	37	Wads	G011W	ClsRm	2,385	128	5	66	83%	4	20%
80	11	Walker	0120A	ClsRm	904	30	1	20	100%	3	15%
81	11		210	ClsLab	1,426	40	1	6	60%	2	10%
82	11		211	ClsLab	731	15	1	16	114%	4	20%
Grand Totals:			Rooms: 82		100,500	4,251	190	3,605	71%	380	24%

Michigan Technological University
Room Utilization Reports
Fall 2020, Monday-Friday, 5:00 PM - 11:00 PM

#	Building No.	Building	Room	Room Use	Sqft	Seats	Classes	Students	Classroom Utilization	Credit Hrs	25 Hr Utilization
1	8	Dow	641	ClsRm	2,923	250	25	150	28%	4	16%
2	8		642	ClsRm	1,601	84	12	44	23%	1	4%
3	8		711	ClsLab	937	16	1	5	25%	1	4%
4	7	EERC	103	ClsRm	2,396	151	3	106	114%	9	36%
5	7		214	ClsRm	983	65	12	32	16%	1	4%
6	7		622	ClsLab	983	16	3	38	90%	6	24%
7	7		738	ClsLab	1,001	18	3	21	70%	9	36%
8	7		827	ClsLab	983	16	4	42	70%	10	40%
9	15	Fisher	135	ClsRm	5,036	476	3	223	83%	7	28%
10	14	Dillman	208	ClsLab	1,559	64	12	20	9%	1	4%
11	28	Rekhi	112	ClsLab	775	20	3	89	82%	6	24%
12	28		214	ClsRm	1,328	48	1	22	88%	3	12%
13	28		G005	ClsRm	1,253	54	1	14	78%	3	12%
14	12	M&M	U115	ClsRm	2,540	240	2	87	102%	6	24%
15	20	MEEM	112	ClsRm	1,652	115	2	43	98%	4	16%
16	20		120	ClsLab	2,630	72	12	33	15%	1	4%
17	20		302	ClsRm	1,129	48	12	29	15%	2	8%
18	20		505	ClsLab	1,588	16	2	28	93%	4	16%
19	20		1101	ClsLab	1,224	19	3	51	85%	6	24%
20	20		1108	ClsLab	1,116	24	1	18	75%	2	8%
21	10	Rozsa Ctr	208	ClsLab	1,790	50	2	33	33%	6	24%
Grand Totals:			Rooms: 21		35,427	1,862	119	1,128	44%	92	18%

Michigan Technological University
Room Utilization Reports
Fall 2020, Saturday-Sunday, All Hours

#	Building No.	Building	Room	Room Use	Sqft	Seats	Classes	Students	Classroom Utilization	Credit Hrs
1	8	Dow	610	ClsRm	890	26	1	13	33%	2
Grand Totals:			Rooms: 1		890	26	1	13	33%	2

Michigan Technological University
Room Utilization Reports
Spring 2021, Monday-Friday, 8:00 AM - 10:00 AM

#	Building No.	Building	Room	Room Use	Sqft	Seats	Classes	Students	Classroom Utilization	Credit Hrs	20 Hr Utilization
1	5	Acad Ofc	201	ClsRm	610	10	2	4	40%	3	15%
2	19	Chem-Sci	103	ClsLab	1,308	20	1	10	33%	3	15%
3	19		0601N	ClsLab	1,048	28	2	21	75%	8	40%
4	8	Dow	610	ClsRm	890	26	4	10	11%	6	30%
5	8		641	ClsRm	2,923	250	4	124	88%	8	40%
6	8		711	ClsLab	937	16	2	21	105%	6	30%
7	7	EERC	103	ClsRm	2,396	151	3	117	78%	8	40%
8	7		227	ClsRm	551	36	1	30	100%	3	15%
9	7		229	ClsRm	1,048	65	1	17	100%	3	15%
10	7		316	ClsRm	823	60	3	51	73%	7	35%
11	7		328	ClsLab	1,140	24	2	30	100%	4	20%
12	7		330	ClsLab	1,558	42	1	13	81%	2	10%
13	7		0427A	ClsLab	420	8	2	4	50%	2	10%
14	7		431	ClsLab	1,206	16	3	31	86%	6	30%
15	7		622	ClsLab	983	16	1	16	100%	2	10%
16	7		738	ClsLab	1,001	18	1	10	100%	2	10%
17	15	Fisher	101	ClsRm	937	32	1	10	67%	3	15%
18	15		135	ClsRm	5,036	476	1	74	84%	4	20%
19	15		138	ClsRm	1,395	92	2	38	54%	6	30%
20	15		139	ClsRm	2,016	125	3	50	45%	8	40%
21	15		325	ClsRm	1,064	72	1	9	26%	3	15%
22	15		330	ClsLab	1,065	24	1	6	120%	2	10%
23	15		B020	ClsLab	941	27	1	6	60%	2	10%
24	100	GLRC	102	ClsLab	1,374	28	1	14	93%	3	15%
25	14	Dillman	101	ClsLab	2,187	60	2	4	20%	5	25%
26	14		202	ClsRm	776	36	1	5	50%	3	15%
27	14		203	ClsLab	863	26	2	21	105%	4	20%
28	14		204	ClsRm	761	43	2	32	89%	4	20%
29	14		208	ClsLab	1,559	64	8	85	85%	7	35%
30	14		214	ClsRm	954	60	2	32	114%	4	20%
31	14		B003	ClsLab	988	16	1	14	93%	3	15%
32	14		B008	ClsLab	1,495	15	1	6	40%	3	15%
33	84	Meese	110	ClsRm	564	25	1	12	150%	3	15%
34	28	Rekhi	214	ClsRm	1,328	48	3	59	56%	10	50%
35	12	M&M	U111	ClsRm	723	30	1	9	75%	3	15%
36	12		U115	ClsRm	2,540	240	4	134	79%	7	35%
37	12		U205	ClsRm	421	26	1	6	30%	3	15%
38	20	MEEM	112	ClsRm	1,652	115	2	61	71%	4	20%
39	20		120	ClsLab	2,630	72	4	196	78%	7	35%
40	20		202	ClsLab	951	16	1	23	100%	2	10%
41	20		302	ClsRm	1,129	48	1	21	44%	3	15%
42	20		305	ClsLab	1,175	16	3	47	98%	6	30%
43	20		402	ClsRm	1,265	48	2	47	59%	6	30%
44	20		0502A	ClsLab	712	16	1	9	27%	2	10%
45	20		601	ClsLab	1,980	16	2	18	75%	4	20%
46	20		701	ClsLab	867	16	1	15	100%	2	10%
47	20		1101	ClsLab	1,224	19	2	29	81%	4	20%
48	20		1103	ClsLab	1,092	20	1	16	80%	3	15%
49	10	Rozsa Ctr	120	ClsRm	1,448	60	1	15	94%	3	15%
50	18	Noblet	108	ClsLab	692	24	1	8	80%	1	5%
51	18		139	ClsLab	618	18	1	8	89%	2	10%
52	18		143	ClsRm	616	40	4	31	82%	7	35%

Michigan Technological University
Room Utilization Reports
Spring 2021, Monday-Friday, 8:00 AM - 10:00 AM

#	Building No.	Building	Room	Room Use	Sqft	Seats	Classes	Students	Classroom Utilization	Credit Hrs	20 Hr Utilization
53	18		144	ClsRm	1,689	26	3	61	107%	9	45%
54	18		G002	ClsRm	1,768	125	1	22	100%	3	15%
55	18		G029	ClsLab	1,104	32	1	15	100%	3	15%
56	11	Walker	109	ClsRm	792	36	1	28	112%	3	15%
57	11		0120A	ClsRm	904	30	2	7	14%	6	30%
58	11		144	ClsRm	634	25	1	6	60%	3	15%
59	11		204	ClsLab	745	5	1	6	100%	3	15%
60	11		210	ClsLab	1,426	40	1	20	100%	3	15%
Grand Totals:			Rooms: 60		74,942	3,214	111	1,844	73%	252	22%

Michigan Technological University
Room Utilization Reports
Spring 2021, Monday-Friday, 10:00 AM - 3:00 PM

#	Building No.	Building	Room	Room Use	Sqft	Seats	Classes	Students	Classroom Utilization	Credit Hrs	25 Hr Utilization
1	5	Acad Ofc	201	ClsRm	610	10	3	18	90%	6	24%
2	19	Chem-Sci	101	ClsRm	1,184	66	1	11	37%	3	12%
3	19		102	ClsRm	1,162	66	1	14	56%	3	12%
4	19		211	ClsRm	1,155	55	1	8	32%	3	12%
5	19		215	ClsRm	584	30	5	7	21%	6	24%
6	19		0501N	ClsLab	976	24	2	34	85%	6	24%
7	19		0501S	ClsLab	976	24	2	27	68%	6	24%
8	19		502	ClsLab	1,124	24	1	5	21%	5	20%
9	19		0503N	ClsLab	966	24	2	34	94%	6	24%
10	19		0503S	ClsLab	966	24	2	28	78%	6	24%
11	19		504	ClsLab	1,100	24	2	36	100%	6	24%
12	19		0601N	ClsLab	1,048	28	2	20	71%	8	32%
13	19		B005	ClsLab	2,473	24	2	98	102%	12	48%
14	8	Dow	106	ClsLab	1,454	16	3	35	78%	15	60%
15	8		420	ClsLab	1,878	15	8	34	43%	3	12%
16	8		610	ClsRm	890	26	2	33	41%	5	20%
17	8		615	ClsLab	643	1	2	15	38%	4	16%
18	8		641	ClsRm	2,923	250	6	460	82%	14	56%
19	8		642	ClsRm	1,601	84	6	168	65%	17	68%
20	8		710	ClsLab	1,287	24	4	41	103%	6	24%
21	8		711	ClsLab	937	16	3	30	79%	9	36%
22	7	EERC	100	ClsRm	1,307	82	5	150	98%	13	52%
23	7		103	ClsRm	2,396	151	7	185	72%	12	48%
24	7		216	ClsRm	551	36	2	18	47%	3	12%
25	7		218	ClsRm	683	45	6	71	70%	11	44%
26	7		226	ClsRm	683	46	1	9	90%	1	4%
27	7		229	ClsRm	1,048	65	4	104	69%	11	44%
28	7		313	ClsRm	571	36	1	14	39%	2	8%
29	7		316	ClsRm	823	60	1	19	48%	2	8%
30	7		328	ClsLab	1,140	24	3	34	62%	6	24%
31	7		330	ClsLab	1,558	42	3	90	111%	7	28%
32	7		421	ClsLab	844	24	3	26	42%	7	28%
33	7		427	ClsLab	1,000	24	7	40	82%	8	32%
34	7		0427A	ClsLab	420	8	2	2	25%	2	8%
35	7		431	ClsLab	1,206	16	7	88	88%	15	60%
36	7		622	ClsLab	983	16	7	104	97%	14	56%
37	7		722	ClsLab	978	30	4	84	70%	8	32%
38	7		738	ClsLab	1,001	18	5	49	98%	10	40%
39	7		827	ClsLab	983	16	8	93	85%	16	64%
40	15	Fisher	101	ClsRm	937	32	2	19	48%	5	20%
41	15		126	ClsRm	593	35	2	8	32%	5	20%
42	15		129	ClsRm	792	53	3	38	32%	9	36%
43	15		130	ClsRm	712	44	1	31	70%	3	12%
44	15		132	ClsRm	693	44	1	17	85%	3	12%
45	15		133	ClsRm	693	44	2	17	43%	5	20%
46	15		135	ClsRm	5,036	476	7	808	78%	20	80%
47	15		138	ClsRm	1,395	92	5	93	83%	12	48%
48	15		139	ClsRm	2,016	125	6	287	97%	17	68%
49	15		230	ClsRm	579	35	1	7	44%	1	4%
50	15		325	ClsRm	1,064	72	7	187	79%	17	68%
51	15		328	ClsRm	928	62	2	28	50%	5	20%

Michigan Technological University
Room Utilization Reports
Spring 2021, Monday-Friday, 10:00 AM - 3:00 PM

#	Building No.	Building	Room	Room Use	Sqft	Seats	Classes	Students	Classroom Utilization	Credit Hrs	25 Hr Utilization
52	15		329	ClsRm	1,065	72	2	27	59%	6	24%
53	15		B003	ClsLab	689	14	1	3	25%	3	12%
54	100	GLRC	102	ClsLab	1,374	28	2	19	63%	6	24%
55	14	Dillman	101	ClsLab	2,187	60	5	66	73%	10	40%
56	14		202	ClsRm	776	36	2	17	57%	3	12%
57	14		203	ClsLab	863	26	2	30	75%	4	16%
58	14		208	ClsLab	1,559	64	5	74	88%	7	28%
59	14		211	ClsLab	968	48	1	5	50%	2	8%
60	14		302	ClsLab	1,243	32	2	31	65%	4	16%
61	14		320	ClsRm	1,051	43	3	34	62%	7	28%
62	14		B003	ClsLab	988	16	2	25	83%	6	24%
63	14		B008	ClsLab	1,495	15	2	27	90%	6	24%
64	84	Meese	110	ClsRm	564	25	3	39	122%	7	28%
65	28	Rekhi	117	ClsLab	1,153	18	2	12	33%	4	16%
66	28		214	ClsRm	1,328	48	6	174	76%	17	68%
67	28		G005	ClsRm	1,253	54	1	38	63%	3	12%
68	28		G009	ClsRm	1,280	48	1	15	50%	3	12%
69	12	M&M Bldg	U106	ClsLab	347	5	7	28	40%	3	12%
70	12		U113	ClsRm	1,069	63	1	21	70%	3	12%
71	12		U115	ClsRm	2,540	240	6	221	78%	17	68%
72	20	MEEM	111	ClsRm	1,429	96	3	61	55%	8	32%
73	20		112	ClsRm	1,652	115	7	219	77%	19	76%
74	20		120	ClsLab	2,630	72	6	78	52%	9	36%
75	20		202	ClsLab	951	16	2	39	100%	4	16%
76	20		302	ClsRm	1,129	48	4	34	38%	10	40%
77	20		303	ClsRm	1,131	48	5	66	45%	12	48%
78	20		305	ClsLab	1,175	16	8	122	95%	16	64%
79	20		402	ClsRm	1,265	48	2	33	41%	6	24%
80	20		403	ClsRm	1,131	48	4	79	57%	8	32%
81	20		505	ClsLab	1,588	16	9	142	99%	18	72%
82	20		601	ClsLab	1,980	16	4	26	54%	8	32%
83	20		701	ClsLab	867	16	2	26	87%	4	16%
84	20		1101	ClsLab	1,224	19	3	23	43%	6	24%
85	20		1103	ClsLab	1,092	20	2	27	79%	5	20%
86	20		1106	ClsLab	1,064	24	1	21	88%	3	12%
87	4	ROTC	101	ClsRm	1,273	47	9	65	41%	10	40%
88	10	Rozsa Ctr	120	ClsRm	1,448	60	4	37	71%	12	48%
89	10		208	ClsLab	1,790	50	2	13	29%	6	24%
90	24	SDC	237	ClsRm	789	48	3	29	44%	5	20%
91	24		238	ClsRm	705	40	3	5	7%	4	16%
92	18	Noblet	108	ClsLab	692	24	2	23	77%	5	20%
93	18		139	ClsLab	618	18	3	21	100%	6	24%
94	18		143	ClsRm	616	40	3	34	81%	6	24%
95	18		144	ClsRm	1,689	26	4	82	115%	10	40%
96	18		146	ClsLab	997	24	2	22	92%	4	16%
97	18		G002	ClsRm	1,768	125	4	123	98%	9	36%
98	18		G029	ClsLab	1,104	32	1	11	110%	2	8%
99	11	Walker	109	ClsRm	792	36	3	28	37%	9	36%
100	11		0120A	ClsRm	904	30	3	16	36%	8	32%
101	11		144	ClsRm	634	25	3	21	60%	9	36%
102	11		202	ClsLab	1,009	28	2	16	67%	8	32%

Michigan Technological University
Room Utilization Reports
Spring 2021, Monday-Friday, 10:00 AM - 3:00 PM

#	Building No.	Building	Room	Room Use	Sqft	Seats	Classes	Students	Classroom Utilization	Credit Hrs	25 Hr Utilization
103	11		210	ClsLab	1,426	40	2	18	82%	6	24%
104	11		211	ClsLab	731	15	3	18	60%	12	48%
105	11		212	ClsLab	404	15	2	15	63%	6	24%
Grand Totals:			Rooms: 105		123,039	5,004	351	6,375	72%	793	31%

Michigan Technological University
Room Utilization Reports
Spring 2021, Monday-Friday, 3:00 PM - 5:00 PM

#	Building No.	Building	Room	Room Use	Sqft	Seats	Classes	Students	Classroom Utilization	Credit Hrs	20 Hr Utilization
1	19	Chem-Sci	0104B	ClsRm	594	32	4	12	20%	3	15%
2	19		211	ClsRm	1,155	55	12	40	18%	1	5%
3	19		0501N	ClsLab	976	24	2	38	95%	6	30%
4	19		0501S	ClsLab	976	24	2	35	88%	6	30%
5	19		0503N	ClsLab	966	24	2	33	92%	6	30%
6	19		0503S	ClsLab	966	24	2	29	97%	6	30%
7	19		504	ClsLab	1,100	24	1	6	100%	3	15%
8	19		708	ClsLab	1,592	32	1	11	50%	6	30%
9	8	Dow	610	ClsRm	890	26	1	7	78%	3	15%
10	8		641	ClsRm	2,923	250	1	24	48%	1	5%
11	8		642	ClsRm	1,601	84	2	34	87%	4	20%
12	8		710	ClsLab	1,287	24	2	20	100%	4	20%
13	7	EERC	103	ClsRm	2,396	151	15	62	31%	7	35%
14	7		218	ClsRm	683	45	2	21	42%	5	25%
15	7		229	ClsRm	1,048	65	1	7	39%	3	15%
16	7		316	ClsRm	823	60	1	10	67%	3	15%
17	7		328	ClsLab	1,140	24	2	33	55%	4	20%
18	7		330	ClsLab	1,558	42	1	22	129%	2	10%
19	7		421	ClsLab	844	24	4	15	20%	7	35%
20	7		427	ClsLab	1,000	24	1	7	39%	2	10%
21	7		431	ClsLab	1,206	16	1	12	100%	2	10%
22	7		622	ClsLab	983	16	4	57	93%	8	40%
23	7		722	ClsLab	978	30	2	43	72%	4	20%
24	7		738	ClsLab	1,001	18	4	39	78%	9	45%
25	7		827	ClsLab	983	16	4	51	93%	8	40%
26	15	Fisher	101	ClsRm	937	32	1	2	13%	3	15%
27	15		125	ClsRm	583	35	1	6	60%	1	5%
28	15		126	ClsRm	593	35	1	11	110%	1	5%
29	15		129	ClsRm	792	53	1	11	79%	3	15%
30	15		130	ClsRm	712	44	2	16	40%	3	15%
31	15		135	ClsRm	5,036	476	2	162	93%	5	25%
32	15		138	ClsRm	1,395	92	2	35	47%	6	30%
33	15		139	ClsRm	2,016	125	3	92	79%	7	35%
34	15		325	ClsRm	1,064	72	1	41	103%	3	15%
35	15		326	ClsRm	1,064	71	1	50	104%	3	15%
36	15		328	ClsRm	928	62	1	12	60%	1	5%
37	15		B003	ClsLab	689	14	1	11	92%	3	15%
38	14	Dillman	208	ClsLab	1,559	64	1	35	97%	2	10%
39	14		214	ClsRm	954	60	1	10	50%	3	15%
40	14		302	ClsLab	1,243	32	1	19	79%	2	10%
41	84	Meese	109	ClsRm	680	25	2	4	22%	3	15%
42	28	Rekhi	117	ClsLab	1,153	18	2	12	43%	6	30%
43	28		214	ClsRm	1,328	48	1	40	100%	3	15%
44	28		G005	ClsRm	1,253	54	3	33	38%	4	20%
45	28		G009	ClsRm	1,280	48	1	14	28%	2	10%
46	12	M&M Bldg	U113	ClsRm	1,069	63	1	33	83%	3	15%
47	12		U115	ClsRm	2,540	240	2	121	97%	6	30%
48	20	MEEM	111	ClsRm	1,429	96	2	54	82%	5	25%
49	20		112	ClsRm	1,652	115	2	59	67%	5	25%
50	20		120	ClsLab	2,630	72	3	97	59%	5	25%
51	20		202	ClsLab	951	16	2	29	91%	4	20%
52	20		303	ClsRm	1,131	48	1	4	12%	3	15%
53	20		305	ClsLab	1,175	16	2	27	84%	4	20%

Michigan Technological University
Room Utilization Reports
Spring 2021, Monday-Friday, 3:00 PM - 5:00 PM

#	Building No.	Building	Room	Room Use	Sqft	Seats	Classes	Students	Classroom Utilization	Credit Hrs	20 Hr Utilization
54	20		402	ClsRm	1,265	48	1	7	21%	3	15%
55	20		505	ClsLab	1,588	16	3	48	100%	6	30%
56	20		701	ClsLab	867	16	1	13	87%	2	10%
57	20		1101	ClsLab	1,224	19	1	8	44%	2	10%
58	20		1106	ClsLab	1,064	24	2	42	88%	6	30%
59	20		1108	ClsLab	1,116	24	3	55	92%	9	45%
60	4	ROTC	100	ClsLab	3,385	30	6	100	33%	4	20%
61	4		201	ClsRm	1,362	30	1	16	32%	2	10%
62	10	Rozsa Ctr	120	ClsRm	1,448	60	1	16	67%	3	15%
63	10		208	ClsLab	1,790	50	4	60	18%	10	50%
64	18	Noblet	139	ClsLab	618	18	3	20	95%	6	30%
65	18		143	ClsRm	616	40	1	7	50%	1	5%
66	18		144	ClsRm	1,689	26	1	22	110%	3	15%
67	18		G002	ClsRm	1,768	125	2	45	107%	5	25%
68	18		G029	ClsLab	1,104	32	2	20	100%	4	20%
	Grand Totals:		Rooms: 68		88,409	3,838	150	2,187	59%	278	21%

Michigan Technological University
Room Utilization Reports
Spring 2021, Monday-Friday, 5:00 PM - 11:00 PM

#	Building No.	Building	Room	Room Use	Sqft	Seats	Classes	Students	Classroom Utilization	Credit Hrs	25 Hr Utilization
1	19	Chem-Sci	108	ClsLab	1,162	44	1	9	23%	3	12%
2	19		0501N	ClsLab	976	24	1	9	45%	3	12%
3	19		0503N	ClsLab	966	24	1	18	100%	3	12%
4	19		0503S	ClsLab	966	24	1	18	100%	3	12%
5	19		504	ClsLab	1,100	24	1	9	100%	3	12%
6	8	Dow	641	ClsRm	2,923	250	36	106	16%	3	12%
7	8		642	ClsRm	1,601	84	12	40	19%	1	4%
8	7	EERC	622	ClsLab	983	16	2	30	100%	4	16%
9	7		722	ClsLab	978	30	1	8	27%	2	8%
10	7		738	ClsLab	1,001	18	4	23	58%	10	40%
11	7		827	ClsLab	983	16	2	32	100%	6	24%
12	15	Fisher	135	ClsRm	5,036	476	1	71	95%	3	12%
13	14	Dillman	208	ClsLab	1,559	64	12	26	12%	1	4%
14	28	Rekhi	117	ClsLab	1,153	18	1	4	40%	2	8%
15	12	M&M Bldg	U115	ClsRm	2,540	240	2	66	80%	6	24%
16	20	MEEM	120	ClsLab	2,630	72	24	65	14%	2	8%
17	20		302	ClsRm	1,129	48	12	31	14%	2	8%
18	20		502	ClsLab	928	16	6	39	91%	9	36%
19	20		505	ClsLab	1,588	16	2	20	63%	4	16%
20	20		1101	ClsLab	1,224	19	2	19	53%	4	16%
21	20		1106	ClsLab	1,064	24	1	17	71%	3	12%
22	20		1108	ClsLab	1,116	24	1	19	95%	3	12%
23	4	ROTC	100	ClsLab	3,385	30	1	9	18%	2	8%
24	10	Rozsa Ctr	208	ClsLab	1,790	50	2	23	23%	6	24%
25	18	Noblet	139	ClsLab	618	18	2	14	100%	4	16%
	Grand Totals:		Rooms: 25		39,399	1,669	131	725	30%	92	15%

Michigan Technological University
Assignable Area by College and Department
Fall 2021

College	Department	Assignable Area
Pavlis Honors College	**Pavlis Honors College**	**10,704**
College of Business	**College of Business**	**10,911**
College of Engineering	Biomedical Engineering	14,601
	Chemical Engineering	40,344
	Civil, Environ & Geospatial Engrg	69,362
	College of Engineering	3,739
	Electrical and Computer Engineering	49,606
	Engineering Fundamentals	3,672
	Geological & Mining Eng & Sciences	20,852
	Manufacturing & Mech Eng Technology	13,923
	Materials Science and Engineering	54,926
	Mechanical Engrg-Engrg Mechanics	107,521
	Total College of Engineering	**378,546**
College of Forest Resources & Envir Sci	Ford Center	65,197
	College of Forest Resources & Environ Sci	60,546
	Total College of Forest Resources & Envir Sci	**125,743**
College of Sciences & Arts	Aerospace Studies (Air Force ROTC)	2,207
	Biological Sciences	44,893
	Chemistry	43,256
	Cognitive & Learning Sciences	9,563
	College of Sciences & Arts	1,161
	Humanities	17,183
	Kinesiology/Integrative Physiology	9,916
	Mathematical Sciences	12,242
	Military Science (Army ROTC)	5,399
	Physics	28,282
	Social Sciences	16,102
	Visual & Performing Arts*	57,034
	Total College of Sciences & Arts	**247,238**
College of Computing	**College of Computing**	**27,725**
		800,867

*Note: Visual & Performing Arts includes the Rozsa Ctr for Performing Arts.

**Note: Data as of 9/9/2021

Building Name	Address	City	State	Zip	Building	Contents	Business Interruption	Total Values
Administration Building	1400 Townsend Dr	Houghton	MI	49931	10,664,284	2,840,817		13,505,101
Electrical Substation	1400 Townsend Dr	Houghton	MI	49931	587,670	1,190,532		1,778,202
Michigan Tech Lakeshore Center	600 E Lakeshore Dr	Houghton	MI	49931	7,407,911	568,164		7,976,075
ROTC Building	1400 Townsend Dr	Houghton	MI	49931	7,081,548	24,819		7,106,367
Academic Offices Building	1400 Townsend Dr	Houghton	MI	49931	3,347,494	665,152		4,012,646
Annex Building	1400 Townsend Dr	Houghton	MI	49931	1,151,196	64,661		1,215,857
Electrical Energy Resources Center	1400 Townsend Dr	Houghton	MI	49931	31,784,505	11,007,020		42,791,526
DOW Environmental Sciences & Engineering Building	1400 Townsend Dr	Houghton	MI	49931	49,426,483	4,545,307		53,971,790
Alumni House	1400 Townsend Dr	Houghton	MI	49931	881,621	142,960		1,024,580
Rozsa Performing Arts & Educ	1400 Townsend Dr	Houghton	MI	49931	24,803,432	1,322,320		26,125,751
Walker - Arts & Humanities	1400 Townsend Dr	Houghton	MI	49931	12,536,262	728,294		13,264,557
Minerals & Materials Engr Bldg	1400 Townsend Dr	Houghton	MI	49931	48,709,951	9,715,888		58,425,839
Center for Diversity and Inclusion	1400 Townsend Dr	Houghton	MI	49931	709,004	123,424		832,427
Grover C. Dillman Hall	1400 Townsend Dr	Houghton	MI	49931	12,747,316	3,178,943		15,926,259
Fisher Hall	1400 Townsend Dr	Houghton	MI	49931	18,081,603	2,840,817		20,922,420
Public Safety & Police Services Building	206 MacInnes Dr	Houghton	MI	49931	80,717	45,454		126,171
J. Robert Van Pelt and John and Ruanne Opie Library	1400 Townsend Dr	Houghton	MI	49931	23,523,490	36,675,998		60,199,488
U.J.Noblet Forestry Building A	1400 Townsend Dr	Houghton	MI	49931	13,519,048	661,159		14,180,207
U.J.Noblet Forestry Building B	1400 Townsend Dr	Houghton	MI	49931	7,383,900	2,374,620		9,758,521
Chemical Sciences & Engineering Building	1400 Townsend Dr	Houghton	MI	49931	31,091,380	4,545,307		35,636,687
R. L. Smith (MEEM) Building	1400 Townsend Dr	Houghton	MI	49931	29,207,761	6,817,959		36,025,721
Student Development Complex	600 Macinnes Dr	Houghton	MI	49931	43,178,120	4,517,252		47,695,373
Kearly Stadium Press Box	1502 E Sharon Ave	Houghton	MI	49931	1,010,000	60,600		1,070,600
Ford Center and Forest	21235 Alberta Ave. #2	L'Anse	MI	49946	171,840	68,286		240,127
Ford Center and Forest	21235 Alberta Ave. #2	L'Anse	MI	49946	9,413			9,413
Ford Center and Forest	21235 Alberta Ave. #2	L'Anse	MI	49946	54,601	6,044		60,645
Ford Center and Forest	21235 Alberta Ave. #2	L'Anse	MI	49946	159,253	47,012		206,265
Ford Center and Forest	21235 Alberta Ave. #2	L'Anse	MI	49946	2,690			2,690
Ford Center and Forest	21235 Alberta Ave. #2	L'Anse	MI	49946	20,222			20,222
Ford Center and Forest	21235 Alberta Ave. #2	L'Anse	MI	49946	15,167			15,167
Kanwal and Ann Rekhi Hall	1400 Townsend Dr	Houghton	MI	49931	16,634,779	3,397,645		20,032,425
Little Huskies Child Care	500 MacInnes Dr	Houghton	MI	49931	826,499	58,647		885,146
Douglass Houghton Hall	1700 Townsend Dr	Houghton	MI	49931	15,223,635	206,411		15,430,045
Daniell Heights Apartments	2005 Woodmar Dr	Houghton	MI	49931	24,764,524	198,510		24,963,034
Daniell Heights Maintenance	2005 Woodmar Dr	Houghton	MI	49931	72,801	10,475		83,276
Memorial Union Building	1400 Townsend Dr	Houghton	MI	49931	14,097,512	1,136,326		15,233,838
21725 Woodland Road House	21725 Woodland Road	Houghton	MI	49931	43,699	5,681		49,380
Wadsworth Hall	1703 Townsend Dr	Houghton	MI	49931	51,016,232	1,786,430		52,802,662
West McNair Hall	1801 Townsend Dr	Houghton	MI	49931	6,236,473	29,835		6,266,308
McNair Hall Food Services	1801 Townsend Dr	Houghton	MI	49931	1,967,087	898,711		2,865,798
East McNair Hall	1801 Townsend Dr	Houghton	MI	49931	9,294,985	284,081		9,579,067
Central Energy Plant	1400 Townsend Dr	Houghton	MI	49931	16,084,984	63,729		16,148,713
Facilities Management Storage	1400 Townsend Dr	Houghton	MI	49931	2,622,574	340,897		2,963,471

Building Name	Address	City	State	Zip	Building	Contents	Business Interruption	Total Values
Facilities Building	1400 Townsend Dr	Houghton	MI	49931	2,568,949	2,272,653		4,841,602
Kettle-Gundlach House	21680 Woodland	Houghton	MI	49931	473,136	22,843		495,979
Tech Trails Waxing Center	1400 Townsend Dr	Houghton	MI	49931	113,968			113,968
217 East Street House	217 East St	Houghton	MI	49931	107,060			107,060
Hillside Place	1801 Woodland Road	Houghton	MI	49931	16,543,150	1,695,730		18,238,880
Property Storage	1400 Townsend Dr	Houghton	MI	49931	175,556	11,363		186,919
Gates Tennis Center	1400 Townsend Dr	Houghton	MI	49931	3,286,769	18,695		3,305,464
207 East Street House (O'Connor)	207 East St	Houghton	MI	49931	95,360			95,360
PLGC Clubhouse	46789 US Hwy 41	Houghton	MI	49931	675,261	85,225		760,485
Mont Ripley Ski Hill	49051 Ski Hill Lane	Houghton	MI	49931	28,492	113,633		142,125
Mont Ripley Ski Chalet	49051 Ski Hill Lane	Houghton	MI	49931	662,348	113,633		775,981
Mont Ripley Storage	49051 Ski Hill Lane	Houghton	MI	49931	84,749	164,833		249,582
Daniell Heights Storage 56	1400 Townsend Dr	Houghton	MI	49931	22,585			22,585
209 East Street House (hagen)	209 East St	Houghton	MI	49931	99,126			99,126
PLGC Maintenance -1	46789 US Hwy 41	Houghton	MI	49931	30,793	199,344		230,137
PLGC Maintenance -2	46789 US Hwy 41	Houghton	MI	49931	14,568	51,134		65,702
PLGC Cart Storage -A	46789 US Hwy 41	Houghton	MI	49931	59,564			59,564
PLGC Cart Storage - B	46789 US Hwy 41	Houghton	MI	49931	40,116			40,116
PLGC Maintenance - 3	46789 US Hwy 41	Houghton	MI	49931	71,269	108,520		179,790
Daniell Heights Storage 65	1400 Townsend Dr	Houghton	MI		23,933	22,727		46,660
KRC Engineering Design Center	23337 Airpark Blvd	Houghton	MI	49931	2,165,391	113,633		2,279,023
KRC Scientific & Admin Offices	23620 Airpark Blvd	Calumet	MI	49913	223,732	3,408,979		3,632,712
KRC Machine & Vehicle Shops	23620 Airpark Blvd	Calumet	MI	49913	82,441	365,922		448,364
KRC Vehicle Service Bldg T3	23620 Airpark Blvd	Calumet	MI	49913	115,421	1,704,490		1,819,910
KRC Vehicle Storage Bldg T4	23620 Airpark Blvd	Calumet	MI	49913	50,230	340,897		391,127
KRC Engineering Laboratories	23620 Airpark Blvd	Calumet	MI	49913	107,979	785,607		893,585
KRC Special Projects Facility	23620 Airpark Blvd	Calumet	MI	49913	62,153	41,329		103,482
KRC Support Services Facility	23620 Airpark Blvd	Calumet	MI	49913	20,544	8,127		28,671
KRC Water Truck Storage	23620 Airpark Blvd	Calumet	MI	49913	171,166			171,166
KRC Eng Support Facil Bendix	23620 Airpark Blvd	Calumet	MI	49913	143,229	255,673		398,902
KRC Chrysler Support Fac II	23620 Airpark Blvd	Calumet	MI	49913	285,276	11,728		297,005
KRC Cold Storage Building	23620 Airpark Blvd	Calumet	MI	49913	285,276	170,450		455,726
Power Generation Building	1400 Townsend Dr	Houghton	MI	49931	1,410,407	2,381,067		3,791,474
21610 Woodland Road House	21610 Woodland Road	Houghton	MI	49931	405,493			405,493
Harold Meese Center	1304 E Houghton Ave	Houghton	MI	49931	2,016,912	284,081		2,300,993
MTU Tower Building		Houghton	MI	49931	16,820			16,820
DPSPS/EMS Building	1400 Townsend Dr	Houghton	MI	49931	71,191	22,727		93,918
Tech Trails Maintenance	1400 Townsend Dr	Houghton	MI	49931	62,737	113,633		176,370
Sands Pilot Plant	6000 Carlos St	Houghton	MI	49931	1,005,445	22,727		1,028,172
Advanced Energy Research Building	1051 Ethel Ave	Houghton	MI	49931	316,917	909,062		1,225,979
Fish Hatchery Building	Fish Hatchery Road	Houghton	MI	49931	15,401			15,401
AMJOCH Observatory	47976 N Huron St	Houghton	MI	49931	40,338	22,727		63,064
Advanced Technology Development Complex	1402 Sharon Ave	Houghton	MI	49931	6,800,880	4,572,611		11,373,491
SDC Annex Building	1400 Townsend Dr	Houghton	MI	49931	199,809			199,809

Building Name	Address	City	State	Zip	Building	Contents	Business Interruption	Total Values
Settling Basin	1400 Townsend Dr	Houghton	MI	49931	224,670			224,670
Mont Ripley Chair Lift	1400 Townsend Dr	Houghton	MI	49931	529,410			529,410
Great Lakes Research Center	100 Phoenix Drive	Houghton	MI	49931	28,876,035	1,675,998		30,552,032
Advanced Power Systems Research Center	7 Industrial Drive	Calumet	MI	49913	6,397,884	1,117,332		7,515,216
A.E. Seaman Mineral Museum	1404 Sharon Ave	Houghton	MI	49931	1,709,518	108,458		1,817,976
212 East Street House (Lockhard)	212 East St	Houghton	MI	49931	114,130			114,130
214 East Street House (Larson)	214 East St	Houghton	MI	49931	125,451			125,451
46645 US-41 House	46645 US-41	Houghton	MI	49931	311,550	27,824		339,375
Facilities Storage	1223 Garnet Street	Houghton	MI	49931	318,993	111,296		430,290
Salt Storage Building	113 Cemetary Road	Houghton	MI	49931	338,294			338,294
FCF Hemlock Residence	21226 Alberta Ave	L'Anse	MI	49946	40,827			40,827
FCF Sassafras Residence	21235 Model T Lane	L'Anse	MI	49946	51,257			51,257
FCF Elm Residence	21229 Husky Dr	L'Anse	MI	49946	58,040			58,040
FCF Birdseye Residence	21251 Model T Lane	L'Anse	MI	49946	68,071			68,071
FCF Spruce Residence	21235 Husky Dr	L'Anse	MI	49946	62,948			62,948
FCF Tamarack Residence	21271 Model T Lane	L'Anse	MI	49946	76,594			76,594
FCF Birch Residence	21345 Husky Dr	L'Anse	MI	49946	59,933			59,933
FCF Basswood Residence	21238 Model T Lane	L'Anse	MI	49946	65,230			65,230
FCF Cedar Residence	21361 Husky Dr	L'Anse	MI	49946	63,291			63,291
FCF Beech Residence	21307 Model T Lane	L'Anse	MI	49946	54,639			54,639
FCF Ash Residence	21353 Husky Dr	L'Anse	MI	49946	56,575			56,575
FCF Balsam Residence	21365 Husky Dr	L'Anse	MI	49946	40,158			40,158
FCF Pump House	21293 Alberta Ave	L'Anse	MI	49946	67,621	8,169		75,791
FCF Sawmill Museum	21277 Alberta Ave	L'Anse	MI	49946	424,680	69,084		493,765
FCF 8-Car Garage		L'Anse	MI	49946	109,330	17,786		127,116
Ford Center and Forest	21281 Husky Dr	L'Anse	MI	49946	1,074,005	249,359		1,323,364
FCF Classroom 1	21307 Husky Dr	L'Anse	MI	49946	236,757			236,757
FCF Classroom 2	21288 Husky Dr	L'Anse	MI	49946	72,677	15,018		87,695
FCF Recreation	21294 Husky Dr	L'Anse	MI	49946	72,677	18,771		91,448
FCF Computer Lab	21302 Husky Dr	L'Anse	MI	49946	109,788	28,357		138,145
FCF Classroom 3	21310 Husky Dr	L'Anse	MI	49946	109,788			109,788
FCF Dorm 1	21358 Liberator Ave	L'Anse	MI	49946	315,996	81,620		397,616
FCF Storage 3	21219 Alberta Ave	L'Anse	MI	49946	72,993	25,140		98,133
FCF Storage 2		L'Anse	MI	49946	2,016			2,016
FCF 9-Car Garage	21208 Glider Lane	L'Anse	MI	49946	254,555	42,420		296,975
FCF Maintenance	21245 Glider Lane	L'Anse	MI	49946	595,628	284,081		879,709
FCF Main Office	21235 Alberta Ave	L'Anse	MI	49946	305,495	92,622		398,117
Michigan Tech Research Institute	3600 Green Court, Suite 100	Ann Arbor	MI	48105		1,721,535		1,721,535
FCF Dorm 2	21235 Alberta Ave. #2	L'Anse	MI	49946	236,757	61,154		297,911
FCF Maintenance	21235 Alberta Ave. #2	L'Anse	MI	49946	154,832	31,996		186,827
Central Heating Plant Fuel Tanks	1400 Townsend Dr	Houghton	MI	49931	1,209,836			1,209,836
Copper Country Mall Print Shop Location	47420 M-26	Houghton	MI	49931		2,020,000		2,020,000
Business Interruption							115,439,000	115,439,000
TOTALS					**624,554,536**	**131,420,014**	**115,439,000**	**871,413,549**