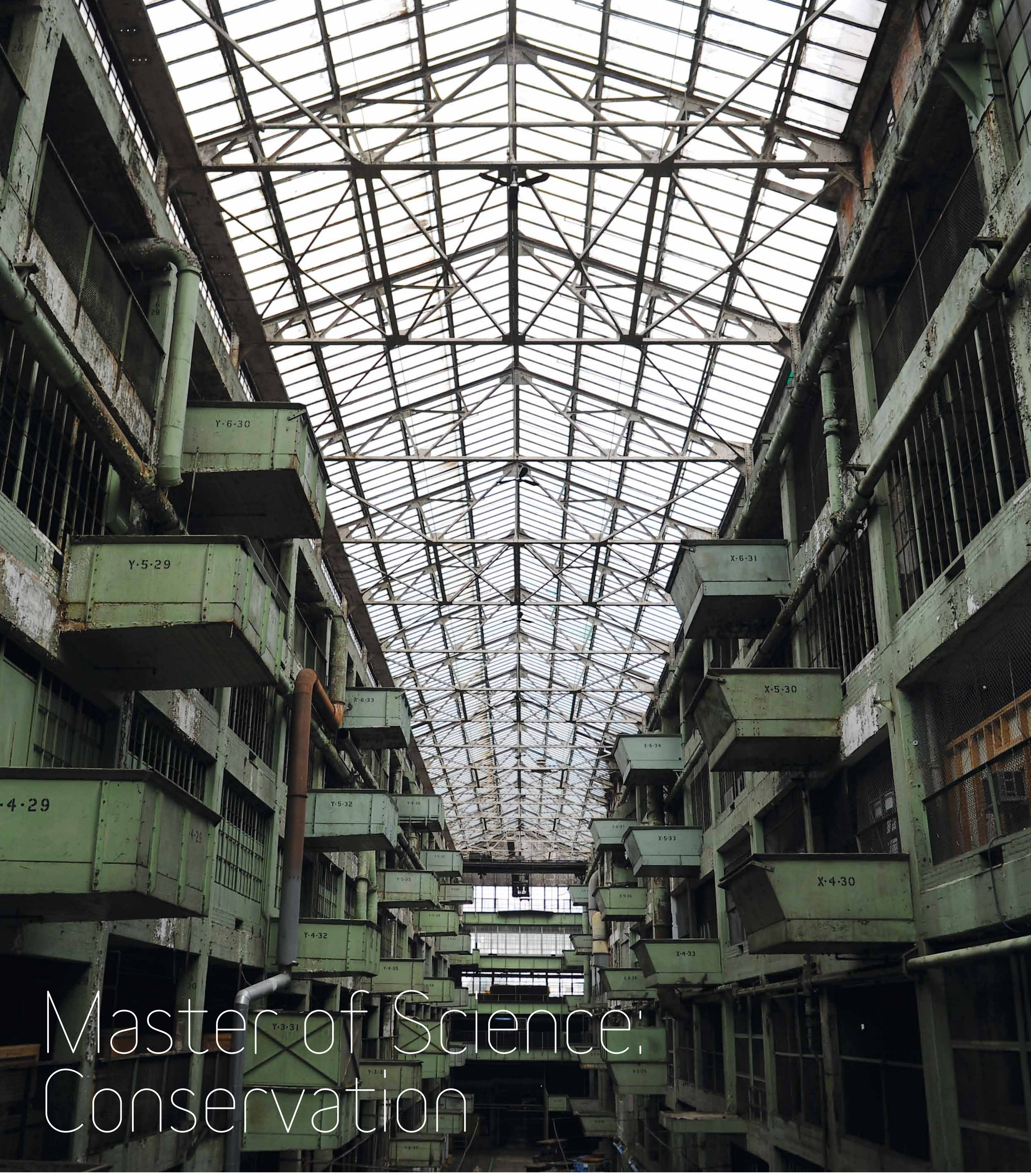

Master of Science: Conservation

Master of Science: Conservation
An innovative approach to historic preservation

The Master of Science concentration in Conservation (36 credits) expands upon conventional notions of Historic Preservation to encompass the multiple scales that shape the cultural and environmental heritage of a community and its region. The course of study offers participants an innovative approach to connecting physical, social and ecological contexts as a means of probing architecture's active role in the construction of culture.

Participants will explore how to imaginatively design the future of historic structures, as well as progressively develop under-utilized historically significant urban sites and landscapes. Participants will be given the tools to bridge the gap between historic preservation of the built environment and the conservation of natural resources.

The program is designed for participants who have an affinity for the architectures and landscapes of the past who want to take an active role in defining a better present and future. Participants will focus on socio-cultural artifacts of memory and the role of conservation in architecture's and landscapes' physical embodiment of historiography. The program builds upon faculty expertise in areas of cultural history and memory, material science, environmental sustainability, social justice, and community development. The course of study capitalizes on the rich modern architecture and post-industrial legacy of the region, as well as our faculty's international expertise.

Pedagogical Goals
Modern and pre-modern landscapes, environments, and cultural sites are at risk of being destroyed or altered to such a degree so as to lose their original relevance. Conservation combines a deep affection for and knowledge of heritage with an engaged understanding of how the past might enhance the vitality of contemporary neighborhoods and cities. Conventional historic preservation fails to capture the holistic role of community advocacy and economic development in conservation processes. At the same time, conventional approaches towards the preservation of natural resources has excluded addressing the man-made landscapes that affect ecological systems. A holistic approach towards conservation has proved to be a highly effective element in community organizing and neighborhood identity, as well as a highly effective economic development strategy.

The degree coursework will combine conservation, activism, and entrepreneurship, and allow Participants to analyze historic districts, sites, landscapes, and territories as well as propose alternatives for the future. It will combine technical training in conservation methods from outstanding practitioners; perspectives on urban history; urban design; community organizing; economic development; and public policy that draw on the college's and the University of Michigan's strengths in those areas and hands-on participation in exemplary conservation projects. Student projects and case studies will take advantage of the rich modern architecture and post-industrial legacy of Michigan, as well as the wealth of our faculty's research abroad.

Participants will have access to the advanced technology available at Taubman College, including state-of-the-art building documentation equipment, the Geographic Information Systems resources available at the SANDLab, and rapid prototyping equipment available in the Digital Fabrication Lab.

Application deadline: March 1, 2012

Learn more about the program and the college:
Master of Science Open House at the University of Michigan:
January 20, 2012, 2:30 p.m. - 5:30 p.m.
A lecture of faculty design research will follow.

"Whither Installations" Symposium
January 21, 2012, 10 a.m. - 4:30 p.m.

All of these events are made available to you as part of your open house registration.

Requirements, how to apply, and for more information:
taubmancollege.umich.edu/msc

IMAGE CREDIT: Highland Park Ford Plant, Albert Kahn 1908.
Photograph by Julia Reyes Taubman, published in *Detroit: 138 Square Miles.*

TAUBMAN COLLEGE
architecture + urban planning
University of Michigan

Master of Science: Material Systems

The Master of Science concentration in Material Systems (MS_MS) is a 2.5 semester (fall, winter, spring half) post-professional degree that develops a platform for project based design research methodologies aimed at experimentation and innovation in architectural material behavior, specific assembly performance, technology integration and responsive material systems. The program is intended to develop new methodologies of architectural exploration that are based in cross-disciplinary collaboration. The program draws on the broad range of research in material systems currently ongoing at Taubman College, as well as close ties with University of Michigan's internationally recognized programs in Materials Science, Engineering, Art and Design, Integrated Microsystems and Environmental Assessment.

The MS_MS Concentration (thirty-six credits) advances architectural research methodologies and design practice in new materials and adaptive / high performance architectural material assemblies with an emphasis upon material performance, fabrication, environmental performance and technology integration. Research streams will include material-scale performance, fluid modeling energy evaluation, and technology-integrated material explorations with emerging manufacturing processes. Participants will work with interdisciplinary faculty from architecture and engineering, manufacturers and professional firms that link innovation with the ability to prototype and test new building components.

Advances in the fields of materials engineering, biotechnology, nanotechnology and microsystems are changing the role of the architect to one of active engagement with the development of new material techniques and systems integration. The concentration seeks to make contributions in not only developing new integrated building systems but also the toolkits for performance evaluation of building components, material performance and environmental feedback. Given the renewed focus on attaining better efficiencies and more sustainable building performance, it is important for the discipline to transform previously single-purpose building system components into components that are multi-purpose, integrated, and able to communicate with each other.

Pedagogical Goals
The degree concentration will focus on two basic trajectories: advancing research in new material exploration through new material applications and manufacturing processes, and advancing research in technology-integrated material explorations (in areas of engineering, responsive and adaptive structures). The concentration seminars and required courses will include lab courses in Material Behavior, New Materials (smart materials, high performance materials, energy conversion materials), Fabrication and Manufacturing Techniques, Materials Selection and the Environment, Interactive Systems, Sensing Systems, Material Ecologies and Performance Evaluation Techniques Labs. The program will leverage cross-disciplinary collaborative work that is linking laboratory-based hard science research with systems applications. Research work will prioritize physical exploration and testbed development as well as the development of appropriate research techniques and methods of evaluation.

UM Resources: Taubman College Digital Technologies Lab (FAB Lab), Environmental and Water Resources Engineering Lab / Hydraulics Lab utilizing laser-induced fluorescence and particle image Velocimetry; Engineering Research Center for Wireless Integrated MicroSystems and the School of Natural Resources and Environment.

Application deadline: March 1, 2012

Learn more about the program and the college:
Master of Science Open House at the University of Michigan:
January 20, 2012, 2:30 p.m. - 5:30 p.m.
A lecture of faculty design research will follow.

"Whither Installations" Symposium
January 21, 2012, 10 a.m. - 4:30 p.m.

All of these events are made available to you as part of your open house registration.

Requirements, how to apply, and for more information:
taubmancollege.umich.edu/msms

IMAGE CREDIT: "The Stratus Project," research on environment-responsive envelope systems, by faculty members Geoffrey Thün and Kathy Velikov

TAUBMAN COLLEGE
architecture + urban planning
University of Michigan

Master of Science: Digital Technologies

The Master of Science concentration in Digital Technologies (MS_DT) is a 2.5 semester (fall, winter, spring half) post-professional degree that offers motivated participants the opportunity to investigate design practices and conduct independent design research in computer-aided design and advanced fabrication techniques. The program builds upon a tradition of cutting-edge technical research at Taubman College, the University of Michigan, and in the Detroit region. University of Michigan offers unmatched excellence in digital fabrication and access to world-class lab and production facilities and regional linkages to industry.

As architecture integrates advanced technologies from the aerospace, automotive, and shipbuilding industries, it has altered both the way buildings are conceived and the manner in which they are manufactured. CAD CAM (computer aided design / computer aided manufacturing) technologies have transformed traditional professional boundaries and forced architects to reconsider their role in response to changing contractual relationships, expansion of client services, and concerns for ecological and sustainable thinking.

The MS_DT (36 credits) is focused on investigations in computer-aided design and advanced fabrication techniques, computational software, computational hardware, data manipulation, and synthetic applications of hardware/software. Project-based research provides a testing ground for new modes of practice and innovative uses of existing, new, and emerging technologies and tools.

The college's Digital Fabrication Lab (FABLab) leverages state-of-the-art industrial technology to perform architectural fabrication research. It is one of few academic institutions around the world utilizing robotic automation to perform both subtractive and additive manufacturing processes.

Fab Lab's resources include — 3D Printers: printers allow digital files to be printed into small plastic or plaster models; 7-axis robot: cuts metals, plastics, rubber, and wood via a variety of tools including a high-speed router spindle and an abrasive waterjet cutting nozzle; Digitizer: allows one to generate points in a digital modeling program based off a physical model; CNC Router: routes wood or foam based on a digital model; CNC Mill: mills metals, including stainless and aluminum, manually or using mastercam technology; CNC Waterjet: cuts 2-dimensional profiles from sheets of material.

Application deadline: March 1, 2012

Learn more about the program and the college:
Master of Science Open House at the University of Michigan:
January 20, 2012, 2:30 p.m. - 5:30 p.m.
A lecture of faculty design research will follow.

"Whither Installations" Symposium
January 21, 2012, 10 a.m. - 4:30 p.m.

All of these events are made available to you as part of your open house registration.

Requirements, how to apply, and for more information:
taubmancollege.umich.edu/msdt

IMAGE CREDIT: Taubman College's digital FAB Lab features a seven-axis robot for subtractive and additive fabrication processes

TAUBMAN COLLEGE
architecture + urban planning
University of Michigan