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 in architecture that develops project-based design research aimed at experimentation in computational design methodologies, embedded sensing, response and environmental mediation, and tooling in the discovery and articulation of material behaviors.

This concentration seeks to make contributions in developing new integrated building systems and 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.

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 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. Research streams will include material-scale performance, fluid modeling energy evaluation, and technology-integrated material explorations with emerging manufacturing processes.

The concentration develops new methodologies of architectural exploration that are based in cross-disciplinary collaboration. Participants will draw on the broad range of research in material systems currently ongoing at Taubman College’s Digital Fabrication Lab (FABLab). Students will connect with internationally recognized programs and resources at the University of Michigan such as; Integrated Microsystems and Environmental Assessment, Environmental and Water Resources Engineering Lab/Hydraulics Lab (utilizing laser-induced fluorescence and particle image velocimetry), Engineering Research Center for Wireless Integrated Microsystems, School of Natural Resources and Environment, College of Engineering, and the Penny W. Stamps School of Art & Design.
MS_MS required courses
(36 credit hours required for the degree)

MS Proseminar (3 credits)
MS Practicum (6 credits)
MS Capstone (6 credits)
Physical Pursuits in Material Systems (3 credits)
Technological Processes (3 credits)
Theories in Material Systems (3 credits)
2 architecture elective courses (6 credits)
2 cognate courses (6 credits)