

Focuses on the potential application of emerging digital analysis and modeling methods to engineering design and decision-making. Topics covered will include various applications of artificial intelligence, generative design, multimodal simulation, massively-connected networks and other digital methods that have the potential to significantly improve the speed and productivity of engineering design and decision-making. Expert guest lecturers from academia and industry will present the state of the art in their domains with interactive discussion. The application of these methods to significantly improve the performance of real engineering processes will be emphasized, considering the potential strengths and limitations of the methods. Students will synthesize their insights from one or more topics covered in the seminar in a final paper.

Session	Topic	Speaker
1	<b>Course introduction Compositional Design of Society-Critical Systems</b>	<u>Prof. Gioele Zardini</u> , MIT Laboratory of Information and Decision Systems (LIDS)
2	<b>AI In Product Development: A Perspective View</b>	<u>John Hirschtick</u> , Chief Evangelist at PTC, Founder SolidWorks, Co-founder Onshape Inc.
3	<b>Advancing Sustainable Construction Through Digital Design and Manufacturing</b>	<u>Prof. Caitlin Mueller</u> , MIT Department of Architecture and Department of Civil and Environmental Engineering, Digital Structures research group
4	<b>Integrating AI into the Front End of New Product Development</b>	<u>Prof. Tucker Marion</u> , Northeastern University, Entrepreneurship & Innovation
5	<b>Generative AI in Engineering Design Applications</b>	<u>Prof. Faez Ahmed</u> , MIT Department of Mechanical Engineering, Design Computation and Digital Engineering (DeCoDE) Lab
6	<b>Student presentations and reflection</b>	Students