innovation and technology in agriculture and the environment

PROFESSIONAL EDUCATION
Short Programs

Faculty Director	COURSE STARTS	COURSE LENGTH	COURSE FEE	CEUs:
Markus Buehler	June 19-23, 2017	5 days	$4,500	3.1

OVERVIEW

The Earth's population will likely exceed 10 billion people in just a few decades, requiring an 80% increase in agricultural production. This presents an urgent need for innovative technologies to make agriculture more efficient, as well as to optimize and adapt existing processes to changing conditions. This course focuses on three fundamental areas that underpin agricultural innovation; I) nano/micro/global aspects of environmental impacts including climate, weather, and microbiological, II) the application of advanced technologies, such as new materials and machines, in agricultural processes, and III) the use of data and modeling to improve yield by enhanced precision and predictive power using large-scale data analytics and simulation. This course offers a unique interdisciplinary experience, bringing together faculty and practitioners from related areas. It's the only place you can get such a concentrated and comprehensive view of this emerging field.

Takeaways from this course include:

- Understanding the critical role of interdisciplinary innovation in creating the agricultural technologies of the future for the next round of productivity gains
- Understanding the current and potential role of biomaterials in agriculture
- Understanding of nano-scale relevant to agriculture
- Understanding the role of computation in materials design for agricultural applications
- Highlighting the essentials of advanced technology such as drones, robotics, and remote sensing technology
- Understanding the principles of spatial design of experiments and the use of relevant data
- Exploring infrastructure, mathematical models, and software in a laboratory setting
- Appreciating the important role of climate, weather, and microbiology and ways to mitigate negative consequences

INSTRUCTORS INCLUDE

Chandra Madramootoo, James McGill Professor, McGill University and Visiting Professor, J-WAFS and CEE

Robert Langer, David H. Koch Institute Professor, Professor of Chemical Engineering, Professor of Biological Engineering, Professor of Mechanical Engineering

Daniel Cziczo, Associate Professor, MIT Department of Civil and environmental Engineering

Dennis McLaughlin, H.M. King Bhumibol Professor, MIT Department of Civil and Environmental Engineering

Sonny Ramaswamy, Administrator of the National Institute of Food and Agriculture, Washington DC

Benjamin Kocar, Assistant Professor, MIT Department of Civil and Environmental Engineering

Ruben Juanes, Associate Professor, MIT Department of Civil and Environmental Engineering; Director, Henry L. Pierce Laboratory for Infrastructure Science and Engineering

Lydia Bourouiba, Esther and Harold E. Edgerton Career Development Assistant Professor, MIT Department of Civil and Environmental Engineering; Associate Faculty, Institute for Medical Engineering and Science

Benedetto Marelli, Paul M. Cook Career Development Assistant Professor, MIT Department of Civil and Environmental Engineering

Michael Strano, Carbon P. Dubbs Professor of Chemical Engineering, MIT Department of Chemical Engineering

Markus J. Buehler, McAfee Professor of Engineering, Head of the MIT Department of Civil and Environmental Engineering

Anupam Bhargava, VP, Advanced Technology & Innovation, Xylem Inc.

Marco Ferroni, CEO of the Syngenta Foundation, Basel, Switzerland

WHO SHOULD ATTEND

This course is designed for people in roles/titles such as VP, director, or manager of R&D; general management with technical background; research scientist or engineer; government administrators (U.S. or overseas); as well as people in academia such as university professors or graduate students.

Industries that would benefit from this course include chemical, machinery, environmental, commodity production (agricultural), seed manufacturing, biotechnology, pharmaceutical, venture capital, and agricultural non-profits including cooperative.

This course may be taken individually or as an elective for the Professional Certificate Program in Innovation and Technology.

Learn more

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