



McMaster Certificate of Completion

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ENGINEERING

W Booth School of
Engineering Practice
and Technology

McMaster Certificate of Completion

Connect with a different kind of professional development program.



The McMaster Certificate of Completion is a unique and innovative training and upskilling program for professionals, which delivers comprehensive, relevant, subject-focused courses in a 3-day, conference-style format. Directly developed from industry feedback, and with the exclusive participation of global industry experts, trainees learn and practice skills based on industry insights, case studies, and proven tools. Three training streams are offered, which address the main challenges faced by organizations in today's competitive economy.

Circular Economy which focuses on sustainable business practice, Carbon economy, and leadership skills required to support the growth of an organization toward an integrated circular business model. Industry Operations Leadership and Management, which enables middle management to lead high-performance teams. This stream covers skills such as intent-based execution, communication, and driving accountability. Advanced Manufacturing and Industry 4.0, which focuses on the fundamental understanding of what Industry 4.0 is and is not, and more focused topics such as cybersecurity, big data, AI, automation.

Who Should Attend?

We work with businesses, organizations, and consultants seeking to re-skill/up-skill their employees and leaders to transition/scale their current operations, growth, and drive continuous improvement.

Depending on the size and interests of organizations, the programs are suitable for professionals and managers/leaders from supervisors up to C-level.

What to expect?

To emphasize a real-time, relevant, industry-first approach, participants will learn directly from expert instructors, leaders in industry, and from businesses and organizations currently enacting best practices, and the use the most relevant tools. You will gain foundational knowledge and apply it through case studies and practice immersive exercises alongside panelist discussions from numerous leaders in the private and public sectors.

Why?

- Cope with the pace of change and complexity of regulations, innovations, and technologies, and industry best practices.
- Actively participate in a training program focused on quality, relevancy, and the success of professionals.
- Learn in a flexible and safe environment the skills sought after by organizations.
- Support the growth and competitiveness of your organization.



Flexible Training

Online, blended and face to face. Team based problem solving.



Skilled Instructors & Industry Experts

Hear and learn from professionals with relevant experience.
Interact with peers from other organizations.



Relevant

Learn key skills which will support your development and the growth of your organization.



Duration

20hrs over 3 days in session of 60-90 minutes per topic.

Circular Economy & Climate Change

Learn how to implement strategies and practices to support your organization's transition to a low-carbon, circular economy



Program Lead

Greg Zilberbrant

✉ zilberg@mcmaster.ca



Earn a Certificate of Completion when you complete one of the following courses:

Our Circular Economy & Climate Change Program focuses on enabling leaders to implement climate change strategies, reduce your organization's carbon footprint, increase resource circularity through clear action grounded in business practices and emerging policies while eliminating wasted resources through an effective carbon and resource footprint mitigation plan.

Courses

Common Attendee Backgrounds: Environment Professionals, Sustainability Professionals, Engineers/Technologists, Technical Managers, Operations Managers, Product Designers

Circular Economy



Canada's **first university-level** professional training program in circular economy.

- Foundational circular economy principles and application
- How to identify or create opportunities within an organization for circular economy implementation
- Successful transitions to different circular economy models through case study investigation
- Practical circular economy tools that you can apply at different levels of organizational complexity and maturity

Carbon Mitigation



Developing strategies to achieve measurable carbon reduction.

- Understanding current and future carbon policy and the legislation landscape
- Successful transitions and technological examples through case studies
- How to identify carbon mitigation practices that would fit your organization
- Practical carbon mitigation prioritization tools that you can apply at different levels of organizational complexity and maturity

Leading Transition



Developing leaders for transition to a low-carbon, circular economy.

- Apply both organizational development and personal leadership lens to explore the drivers of transition
- Opportunities to innovate and build competitiveness
- Through functional assessment, map your leadership and organizational needs against established leadership models to strategize, plan, and communicate an effective transitional strategy



Sustainable Infrastructure Design & Engineering

Learn the concepts, applications, and best engineering practices to create sustainable, climate resilient infrastructure solutions.

- Understanding the conditions for sustainability and the role of infrastructure to create positive environmental, social, and economic conditions
- Analyzing the role of infrastructure decisions on climate mitigation and adaptation
- Applying lifecycle assessment and circularity principles to quantify the impact of infrastructure design
- Practical tools to measure and monitor the sustainability and climate resilience of infrastructure



Sustainable Infrastructure: Low-Impact Development & Climate Resilience

Develop an understanding of the emerging approaches to the design, construction, operation and maintenance of engineered green infrastructure.

- Understanding need to focus on engineered green infrastructure and the role of low-impact development in a changing climate
- How to apply best practices and practical techniques in designing, constructing, and effectively managing engineered green infrastructure
- Utilize industry-leading tools to evaluate the environmental and lifecycle cost performance of engineered green infrastructure

Industry Operations & Leadership Management Program

McMaster's Industry Operations Leadership and Management program is a hands-on, applied learning experience. Each course in the program is designed to enable industry business leaders to develop, deploy and execute high-performance industry teams capable of utilizing innovation, flexibility, bottom-up intent-based execution to sustainably scale industry operations.



Earn a McMaster Certificate of Completion



When you complete a course, you will earn a McMaster Certificate, enhancing your resume to help you stay competitive or stand out in the job market. Take any IOLM course individually or take all five to qualify for a 6th certificate of Industry Operations Leadership and Management.

Common Attendee Backgrounds: Directors, Managers, Supervisors, Team Leaders, Lead Hands, Officers, Senior NCO's



Program Lead

Ashan Corea
✉ coreaa@mcmaster.ca



Group Mentorship Program

Participants who enroll in all five courses are placed in the Group Mentorship program. Paired with an Industry Leader Mentor, participants conduct a tailored Leadership Development Plan over ten months to derive a measurable performance improvement, top performers are awarded a Letter of Recommendation showing demonstrating their understanding and growth as an industry 4.0 leader.

Courses



Industry Operations Leadership Fundamentals

- Learn the anatomy of high-performance teams and industry 4.0 business unit operations.
- Focus on high-performance leadership, strategic alignment, communication, tactical execution, disruption management, and performance management.



Industry Tactical Planning & Execution

- Gain the knowledge and competencies to develop a high-performance industry team and execute efficiently within an industry operation.
- Intent-based leadership, team development, tactical level operations execution, performance & disruption management, and driving continuous improvement.



Industry Business Unit Management

- Develop the operational competencies and industry-insights needed to maneuver, sustain, and efficiently execute an industry business unit (IBU).
- Understand the anatomy of an IBU, supply chain management, the digitization of industry operations, critical operational tools, project planning, change management, strategies to scale, and threat and disruption management.



Advanced Leadership Skills

- Solidify and elevate the leadership skills needed to develop, deploy, and drive high-performance teams.
- Learn to cultivate a high-performance team culture, performance & change management, coaching & mentorship, conflict management, stakeholder buy-in communication skills, and instructional technique.



Advanced Industry Business Unit Execution

- Obtain competencies and strategies needed to scale industry 4.0 operations.
- Study intent-based strategic execution, lean manufacturing techniques, sustainability, advanced project planning techniques, risk & financial management, cyber-security, forecasting & foreplanning, and auditing.

Advanced Manufacturing & Industry 4.0 Program

Equip your organization with the skills needed to seamlessly integrate into the emerging digital industrial landscape.

By gaining foundational knowledge and applying it through case studies and practice exercises alongside talks from numerous leaders in the private and public sectors, participants are expected to take roles in leading and managing the transformation journey required to make their organization more efficient and competitive in the new digital age.

This program is made up of four courses that can be taken individually, and successful candidates will be awarded a McMaster Industry Certificate of Completion in the course subject matter completed.

Common Attendee Backgrounds: Manufacturing, Operations & Technical Engineers, Managers, and Professionals; Automation Experts; Scheduling & Production Planners; CAD/ CAM Engineers; Hardware Integrators; Quality Assurance & Reliability Professionals

Courses



Industry 4.0 and Cyber-Physical Systems

- Learn fundamental elements of Industry 4.0 and cyber-physical systems.
- Identify current trends and best practices for developing and deploying Industry 4.0 solutions, providing practical tools to help you successfully implement digital change at different levels in your organization.



Advanced Manufacturing and Hybrid Engineering

- Discover the fundamentals of AM and the latest hybrid engineering and manufacturing processes.
- Learn the pros and cons of each processes, highlighting potential opportunities for adoption in your organization.
- Walk through case studies and work through hands-on additive design and manufacturing problems to help facilitate a deeper understanding of additive manufacturing and hybrid engineering processes that together can open up new opportunities for improvement and product development in your organization.



Big Data, AI, and Cyber-Security

- Understand the fundamentals of big data, machine learning, AI, and Cyber Security.
- Connect data to your processes and operations, and how to capitalize on that data to increase efficiencies and add value to your organization.
- Learn to assess the risks and benefits to deploying IoT technologies, identifying weaknesses and vulnerabilities, and how to effectively mitigate those risks.



Automation

- Progress through each level of the automation hierarchy.
- Work your way up through the control and acquisition devices and examine the components of the industrial communications network.
- Learn how best to design and setup effective communication between automated systems and people throughout your organization.

Program Lead

Andy Simoneau

✉ simonea@mcmaster.ca



Our Team



Florent Lefevre-Schlick

McMaster Certificates of Completion Program Manager



Greg Zilberbrant

Circular Economy & Climate Change Program Lead



Andy Simoneau

Advanced Manufacturing & Industry 4.0 Program Lead



Ashan Corea

Industry Operations Leadership & Management Program Lead

Recent Industry Guest Speakers



Marcelo Lu

President

BASF Canada



Heather Chalmers

President, GE Healthcare Canada
President & CEO

GE Canada



Nicole Verkindt

Founder, CEO

OMX



Bruce Lourie

President

Ivey Foundation



Lakshmi Eleswarpu

Vice President Of Boeing's

Business & Supply Chain System



Sandra Odendahl

Vice President

Social Impact & Sustainability, Scotiabank



Justine Hendricks

Senior Vice President, Sustainable Business & Enablement

Export Development Canada



Baba Vishwanath

Professor Of Management

McMaster University



Egan Greenstein

Senior Director

Boeing Next



Shelley Peterson

Principal Investigator Augmented & Mixed Reality

Lockheed Martin



Brian Macdonald

Senior Political Strategist

Samuel Associates



Amelia Kuch

Policy Research Manager

Ellen MacArthur Foundation

Testimonials

Industry Operations Leadership Fundamentals

The Industry Operations Leadership Fundamentals Course provides a very detail introduction of what is Industry 4.0 which is unclear for many of us. It also introduces the Strong Link Archetype which provides a very specific and practical model of leadership intended to learn and develop tools, techniques and leadership styles for the Industry 4.0 environment combined with specific methodologies or techniques to enable leaders with powerful tools for project and resources management. The Professors and Guest Speakers have a great balance between academical and practical experience, providing useful and practical tools and techniques to transfer the acquired knowledge into immediate action. In my particular case as a Plant Manager at Tesla, understanding the Industry 4.0 environment, and the upcoming trends and technologies in manufacturing, is providing me with a different perspective to better understand the challenges that my team and I are and will be facing in the following years and as well to better lead and manage the new generations that are developing in this fast changing and technologically advanced environment.

Leonardo Guerrero

Plant Manager

Tesla



Leading Transition & Carbon Mitigation

McMaster's Leading Transition and Carbon Mitigation courses helps sustainability professionals of all levels navigate through today's carbon economy. With a number of industry speakers, the courses successfully bridges theory and application.

Alvin Baldovino

Assistant Director Engineering Operations

McMaster University



Industry Operations Leadership Fundamentals

Great course with practical tools! The Industry Operations Leadership & Management course is great for new supervisors and managers looking to create highly effective teams. The course outlines a practical way to communicate expectations and deliverables ensuring accountability across each team member and increasing engagement across the team. The use of practical examples and experiences from the course instructor and each mentor proves that these tools work. If you are looking for ways to increase productivity and ensuring accountability, this is the perfect course.

Joe Figliomeni

Director of Business Operations

Princess Margaret Cancer Foundation



Circular Economy, Carbon Mitigation, Leading Transition

After completing all three courses in the Circular Economy & Carbon Mitigation program my eyes were opened to a number of new ideas. I gained knowledge and perspective to leverage UN Sustainable Development Goals in my corporate sustainability strategy. The courses also equipped me with tools and understanding to not only measure and evaluate the success of our corporate sustainability strategies, but to pass this learning on to my colleagues. Thanks to the team at McMaster for producing such a high-quality professional program.

Daniel Carrocci

President

Determination Drilling



Circular Economy, Carbon Mitigation, Leading Transition

I had the pleasure of participating in the first Circular Economy certification course presented by McMaster University's W Booth School of Engineering Practice and Technology. It was a room full of changemakers with diverse backgrounds and a common goal; to learn how to help move their industry toward a circular economy. The course left me feeling inspired and empowered with the tools to play a role in this important transition.

Taylor Stimpson

Junior Research Associate

EcoPackers Inc.



Circular Economy

McMaster's Circular Economy Certificate Course was well designed, well executed and a course that I would highly recommend to sustainability practitioners across all industries. The instructor, as well as the presenters, included both theoretical and practical content. The interactive exercises were also a highlight.

Amy Sandhu

Head of Sustainability & Government Relations

BASF Canada



Industry Tactical Planning & Execution

The MacMaster IOLF had a great selection of very knowledgeable presenters from a variety of fields who were able to discuss the impacts of key theories in practice based on their experience. I was particularly impressed with the consideration McMaster had in bringing in a speaker to address mental health within the context of managing. It is a topic often cited as important, but rarely are managers provided tools to deal address it.

Thanuja Rukman

Manager

Department of National Defence



Tuition/ Fees

McMaster's Certificates of Completion are eligible for qualifying Canadian businesses and associations in collaboration with NGen Canada and the AMP UP Program to obtain a subsidy for our current offerings. Please add HST for Canadian applicants, and VAT for international applicants.

Any Individual McMaster Certificate of Completion Course <ul style="list-style-type: none">• Course Certificate	NGEN AMP UP / Association Cost \$750 CAD	Alumni & NGEN Member Cost \$1,500 CAD	Regular Cost \$2,000 CAD
Industry Operations Leadership & Management Full Program Participant <ul style="list-style-type: none">• All Five Courses• Mentorship Program• Letter of Recommendation• Six Certificates	NGEN AMP UP / Association Cost \$3,750 CAD	Alumni & NGEN Member Cost \$7,500 CAD	Regular Cost \$10,000 CAD

Sustainable Infrastructure Course Cost

Please note both the Sustainable Infrastructure courses - a part of the Circular Economy & Climate Change Program are not eligible for the NGEN subsidy. To inquire about costs for both these courses, please visit www.mccmcmaster.ca or contact our Outreach Lead.

Register

New applicants can register for upcoming courses at www.mccmcmaster.ca

Course Dates

View all upcoming course dates at www.mccmcmaster.ca

Take the Next Step

Ready to enroll?
Do you have questions about the McMaster certificate course?
Our team is here to help.

- Determine if this program is right for you or your organization
- Learn more about McMaster's certificate programs

Program Lead

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