

AI/ML Workshop: Transforming R&D, Manufacturing and Commercial Operations: Expected Course Outline

This course teaches cutting-edge AI and machine learning fundamentals and their practical applications in R&D, manufacturing, and business optimization—with a focus on advanced materials and chemical industries. Participants will gain hands-on experience deploying AI solutions to accelerate product development, reduce costs, and improve market predictions through expert instruction, guided exercises, and real-world case studies. The course is designed for scientists, engineers, technical professionals, and innovation leaders looking to leverage AI to generate business value and solve specific organizational challenges.

<u>Class Dates</u>	<u>Topics / Activities During Class</u>	<u>Assignments, Notes, Demos</u>
05/04/2026	AI/ML Workshop: Transform R&D, Manufacturing, and Commercial Operations	Training Program for Advanced Materials, Chemical, and Hi-Tech Industries
8:30 - 9:00	Welcome & Introduction	<ul style="list-style-type: none"> Trainer and participant introductions Course objectives and agenda overview
9:00 – 10:30	Foundations of AI/ML (Part 1)	<ul style="list-style-type: none"> Overview of Supervised, Semi-supervised, Unsupervised, and Reinforcement Learning AI/ML Applications in prediction and optimization
10:30–10:15	Break	
10:45 – 12:00	Foundations of AI/ML (Part 2)	<ul style="list-style-type: none"> Introduction to Deep Neural Networks, advanced AI models, and key algorithms Brief Introduction to Generative AIs (LLMs)
12:00–12:45	Lunch Break	<ul style="list-style-type: none"> Included in the training fee
12:45 – 14:00	The AI/ML Model Development Process	<ul style="list-style-type: none"> AI/ML Model: Six-Step Processes
14:00–14:15	Break	
14:15–16:00	Industry Challenges and Case Studies of AI/ML Applications	<ul style="list-style-type: none"> Examples and case studies in R&D, Manufacturing, and Commercial Operations
16:00–16:30	Wrap-Up & Feedback	<ul style="list-style-type: none"> Recap of key takeaways and further study references Open Q&A session
Books & References	<p>“Machine Learning Engineering”, Andriy Burkov “Introduction to Artificial Intelligence”, Wolfgang Ertel</p> <p>AI/ML Software Tools:</p> <ul style="list-style-type: none"> MATLAB (https://www.mathworks.com/products/matlab.html) Z-AIB (https://www.zw-ml.com) 	