



School of Mechanical & Aerospace Engineering

MSc Smart Manufacturing

Overview

Manufacturing has been recognised as a key industry for both developed and developing economies. It is undergoing another profound transformation towards “Smart Manufacturing”, characterised by Industry 4.0 and digitalisation. The MSc in Smart Manufacturing builds upon NTU’s long and rich history of teaching and research on manufacturing, and brings in new technologies like 3D printing, artificial intelligence, and machine learning into the curriculum. Supported by world-class faculty and facilities, this programme combines academic learning with hands-on training, giving students a comprehensive education to prepare for a professional career in smart manufacturing in the digital age.

Who should apply

The programme caters to both full-time and part-time students who are seeking employment or advancing their career in advanced manufacturing related roles that include *precision engineering, additive manufacturing (3D printing), production process control and automation, prototyping, fabrication, and mass production*.

Graduates from the programme are expected to find jobs and advance their careers in a wide range of industry sectors that include: *Electronics, Semiconductors, Robotics, Building and Construction, Pharmaceutical and Chemical, Aerospace, Defence, Marine, Oil and Gas*.

PROGRAMME STRUCTURE

Option 1: Coursework Only (Default Option)

10 Courses

4 Core & 6 Electives

Option 2: Coursework and Dissertation

8 Courses + Dissertation

4 Core & 4 Electives

DURATION OF THE PROGRAMME

Part-Time Study

Minimum Candidature: 2 years (4 semesters)

Maximum Candidature: 4 years (8 semesters)

Full-Time Study

Minimum Candidature: 1 year (2 semesters)

Maximum Candidature: 2 years (4 semesters)

CORE COURSES

MA6501: Manufacturing Control and Automation

MA6502: Fundamentals and Advances in Additive Manufacturing

MA6503: Lasers and Optics in Smart Industry

MA6504: Management of Global Manufacturing

ELECTIVE COURSES

MA6086: Systems Engineering Fundamentals

MA6511: Advanced Manufacturing Processes

MA6512: Fundamentals of Precision Engineering

MA6513: Advanced Design for Manufacturing

MA6514: Machine Learning and Data Science

MA6515: 3D Printing of Electronics

MA6516: Manufacturing in the Circular Economy:
Processes, Technologies and Design

MA6715: Systems Simulation & Modeling

MA6802: Engineering Measurements

MA6803: Computational Methods in
Engineering

QUOTE

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The Smart Manufacturing Programme has revolutionised our visions by incorporating a comprehensive advanced curriculum. This programme is a transformative experience that will undoubtedly drive innovation, efficiency, and success in any manufacturing setting and academic journey.



Gao Xinchao

(Class of 2022)

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The MSc Smart Manufacturing Programme has provided me with valuable insight into the convergence of traditional and cutting-edge manufacturing technologies, specifically in the context of Industry 4.0. The programme's curriculum has equipped me with the necessary skills and knowledge to adapt and excel in the dynamic landscape of modern manufacturing.



Zhao Xuhe

(Class of 2023)

Learn more



PROGRAMME DIRECTOR

Assoc Prof Murukeshan Vadakke Matham

Email: mae.msc@ntu.edu.sg