

School of Manufacturing Systems and Networks (MSN)

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Future Manufacturing Workforce



Domain Specific Knowledge

Manufacturing Processes, Digital Design, Analysis and Simulation;



Sensors/Controls

Sensor Hardware; Control Algorithms; Communication Standards; Factory Integration; Embedded Systems



Cloud Computing

SQL/NoSQL; Streaming Databases; Developing Manufacturing Apps in the Cloud



Machine Learning

Big Data Manipulation; Statistical Tools; Data Mining; Forecasting; Decision Making



Process Intelligence

Cybersecurity; Building Dashboards; Predictive Maintenance; Process Optimization



Data Visualization

Charts and Infographics; Data Representation and Transformation

MSN Academic Programs

Manufacturing Engineering BS

- Processes & Charac.
- Industry Automation
- Digital Manufacturing

Manufacturing Engineering MS

- Engineering analysis
- Manufacturing Inf. Tech
- Manufacturing Processes

Manufacturing Engineering PhD

- Space Manufacturing
- Digital Manufacturing
- Manufacturing Processes

Robotics & Autonomous Systems BS

- Industry capstone
- Accelerated program
- Internship opportunities

Robotics & Autonomous Systems MS

- Engineering analysis
- Systems engineering
- Manufacturing Processes

Robotics & Autonomous Systems PhD

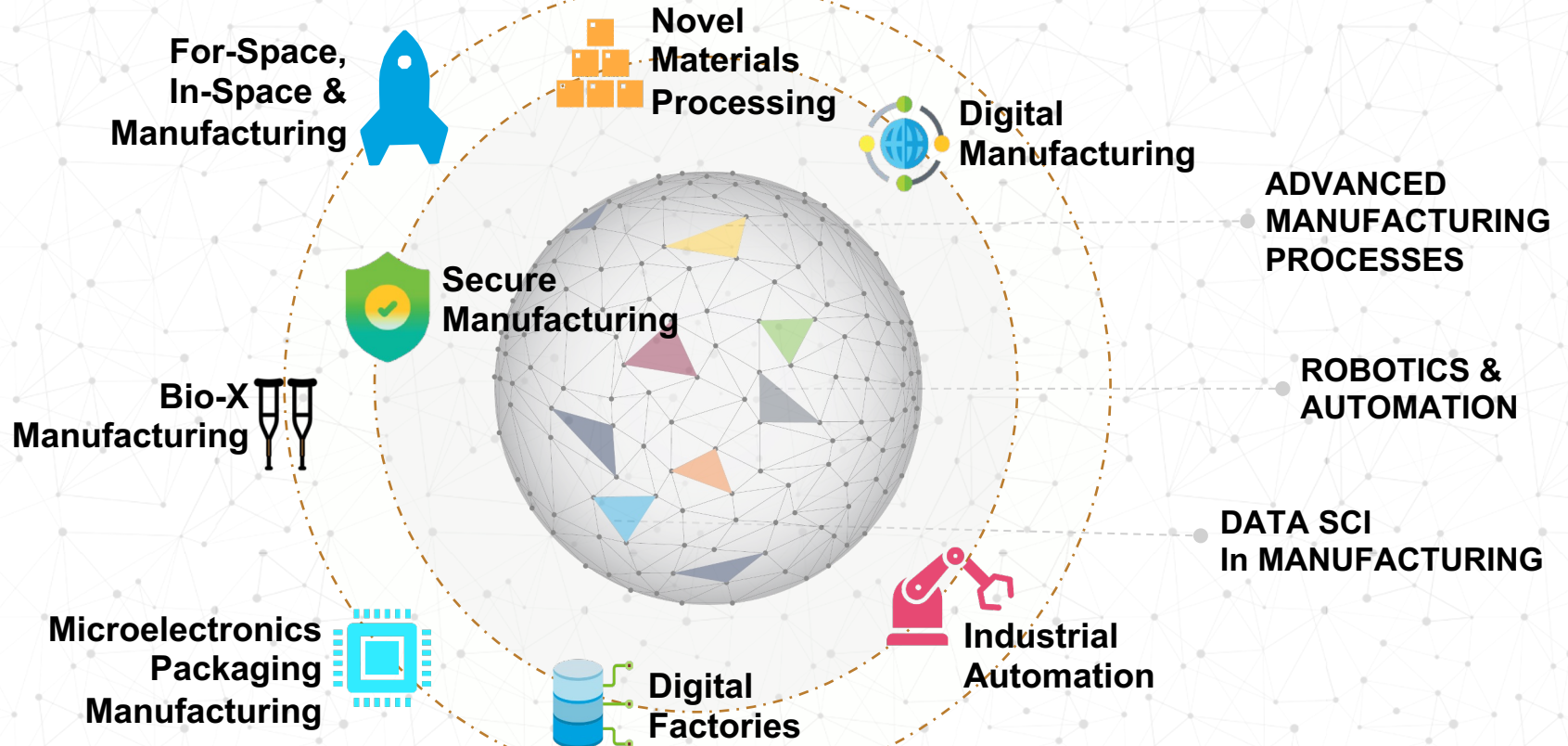
- Space Robotics
- Industrial Robotics
- Mechatronics

Systems Engineering PhD

- Robotics
- Automotive systems
- Energy systems

MSN RESEARCH FOCI

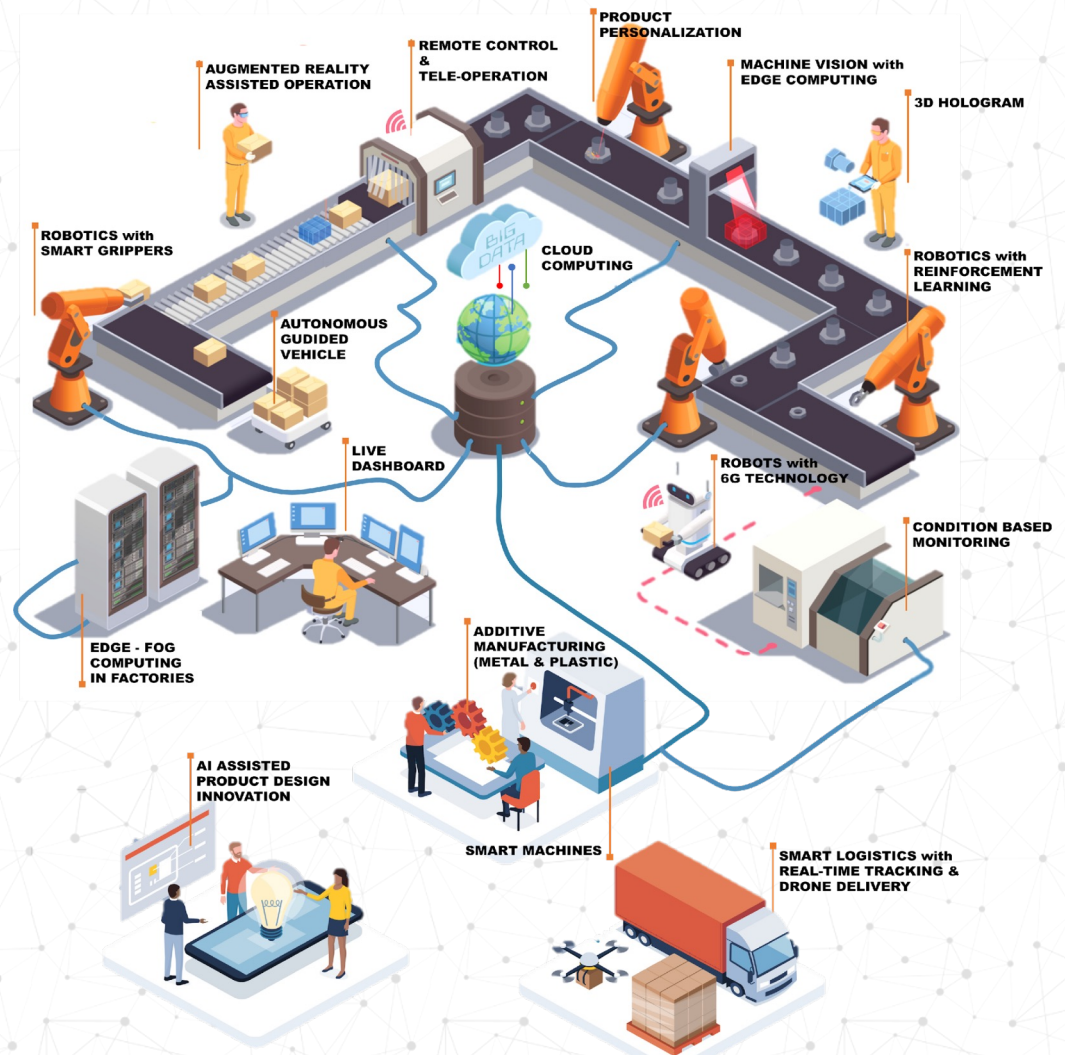
Integrating
Manufacturing Processes + Automation + Digital Engg.



Emergence of digital factories

12 Enabling Technologies

Artificial Intelligence	Mixed Reality (AR/VR/XR)	Digital Supply Chains
Smart Robotics	Smart Contracts	Cloud-Fog-Edge Computing
Industrial Internet of Things	Electrification of Processes	Digital Manufacturing
Smart Materials	Manufacturing Marketplaces	Hybrid Manufacturing



New home for MSN: Fall 2025

Interdisciplinary Science & Technology Building (ISTB-12)

~180,000 sq. ft.

Large manufacturing
pilot open space

Industry-academic
collaboration

Student learning and
collaboratory spaces



ISTB-12
Future Factory Labs

Hybrid Manufacturing

Industrial Robotics and Automation

AR / VR / XR labs

Industrial Metrology and Characterization

ISO 5-8 clean rooms

Battery Manufacturing Testbed