

# Certificate in Industry 4.0

---

In recent years there has been a major shift in both the how and where manufacturing occurs. Manufacturing has become an integration of human capabilities, automation, and information. Therefore, manufacturers require a higher level of technical proficiency and ability to both design and operate integrated cyber-physical systems that are representative of what is termed “Industry 4.0”. These systems integrate information (cyber security, big data, cloud computing, blockchain) and cyber-physical manufacturing (sensors/IoT, additive manufacturing, advanced materials, robotics, collaborative bots, autonomous material flow, digital twins) to support the breadth of topics necessary for Industry 4.0 implementation. The Industry 4.0 Certificate will provide a theoretical foundation, combined with an experiential laboratory learning environment, that will prepare students to contribute and be successful in the new manufacturing environment.

## Requirements

Students must complete all four required courses (either 12 credit hrs if MAE or 13 credit hrs if ISE manufacturing course/lab is taken).

### Required Courses

ISE 3500 & ISE 3505 or MAE 3500 & MAE 2510	Introduction to Manufacturing Methods and Computer Aided Design and Manufacturing Processes Laboratory Introduction to Manufacturing Methods and Manufacturing Practice	4
ISE 3530	Industrial Robotics	3
ISE 4570	Industrial Automation and Control	3
ISE 4565	Smart Manufacturing Systems	3

Note: ISE 4570 is a prerequisite for ISE 4565