MANUFACTURING, MINOR

The Manufacturing minor is intended to provide our current undergraduates the skills and knowledge for successful careers in manufacturing systems and processes, and their practical applications ranging from manufacturing processes to other industries such as robotics, automotive and aerospace. Students will be exposed to applications of cyber-physical systems, robotics, and automated manufacturing as well as automotive and aerospace industries. Some of the skills required to pursue employment opportunities, which may be imparted through the manufacturing minor, include, but are not limited to, industrial safety practices and procedures; control of manufacturing processes; flexible manufacturing systems; process planning and optimization; robotic and automated manufacturing; and computer-integrated manufacturing/CAD/CAM integration.

The Manufacturing Minor requires 18 total credit hours, to include 12 required hours of coursework (listed below) and 6 hours of elective coursework.

Code and Title		Hours
Required		**12**
GES 255 or	Engineering Statistics I	3
GES 400	Engineering Statistics	
MTE 271	Engr Matls: Struc Prop	3
ME 383	Modern Manufactur Processes	3
ME 490	Mechanical Engr Design II (or equivalent Capstone Design Experience)	3
Approved Electives		**6**

Electives are offered on a regular schedule, but not necessarily every year. Students may choose from the list below or from a list of additional manufacturing minor electives available from the department. Some elective options include sequential courses (i.e. courses vary from 1 credit hour to 3 credit hours).

Code	Title	Hours
AEM 452	Composite Materials	3
AEM 455	Nondestructive Evaluation	3
CHE 493	Process Dynamics & Control	3
EC 110	Principles of Microeconomics	3
EC 112	Honors Prin of Microeconomics	3
ME 421	Reliability & Maint. Engr.	3
ME 577	Advanced Linear Control	3
MTE 439	Metallurgy Of Welding	3
ME 424	Automotive Manufacturing	3
ME 430	Fuzzy Set Theory & Application	3
ME 440	Failure of Engr Materials	3
MFE 442	Adv Mat Sci and Add Processes	3
MFE 473	Dis Sim of Manufacturing Sys	3
MFE 483	Computer Aided Manufacturing	3
MFE 485	Mod Manufacturing Practices II	3
MFE 302	Advanced PLC	1
MFE 303	Adv Auto & Matl Handling	1
MFE 326	Process Monitoring and Control	1
MFE 332	Quality Control In Manufac Sys	3
MFE 338	Introduction to Industry 4.0	1
MFE 342	Fund of Materials Processing	3
MFE 385	Metrology	4
MFE 201	Basics of Robotics	1
MFE 202	Basics of PLC	1
MFE 203	Basics of Auto & Matl Handling	1
MFE 222	Robotic Welding	1
MFE 224	Industrial Auto with Robotics	1
MFE 226	Instrumentation for Automation	1
MFE 232	Flex Manufacturing Sys	1
MFE 262	Intro Industrial Internt Thngs	1
MTE 449	Powder Metallurgy	3
MTE 491	Special Problems	1-3

Faculty

Professors

Jalili, Nader, Department Head

Agrawal, Ajay K.

Balasubramanian, Bharat

Krishnan, Sundar Rajan

Shen, Xiangrong

Shepard Jr., W. Steve

Srinivasan, Kalyan Kumar

Associate professors

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Bittle, Joshua A.

Fonseca, Daniel J.

Khandelwal, Bhupendra

Mahmoodi, S. Nima

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Volkov, Alexey N.

Williams, Keith A.

Yoon, Hwan-Sik

Assistant professors

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Davami, Keivan

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Kim, Hyun Jin

Martelli, Dario

Pakniyat, Ali

Patiballa, Sree Kalyan

Samadi, Forooza

Shah, Krishna

Vikas, Vishesh

Instructors

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Koutahzadeh, Negin

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Daniewicz, Steve

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