MANUFACTURING SYSTEMS ENGINEERING, BS

This B.S. program will provide graduates the skills and knowledge for successful careers in manufacturing systems and processes with practical applications ranging from manufacturing processes to cyber-physical systems.

Manufacturing jobs have become a major staple in the state economy, and our department, joining forces by the College of Engineering and The University of Alabama, is doing what it can to supply a pipeline of workers. A manufacturing facility has been built as part of an initiative oriented to develop a premier hub for multidisciplinary research and education in intelligent and advanced manufacturing systems and processes.

Freshman

Fall	Hours	Spring	Hours
CH 101 or 117	4	PH 105 or 125	4
or CH 100		MATH 126 or 146	4
MATH 125 or 145	4	ENGR 103	3
ME 121 or MFE 190	1	ENGR 161	1
History (HI) or social behavioral science (SB) elective	3	EN 102	3
EN 101 or 103	3		
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
PH 106 or 126	4	MTE 271	3
MATH 227 or 247	4	MATH 238	3
AEM 201	3	AEM 250	3
ME 215	3	AEM 251	1
MFE 200-level Electives[1]	3	Humanities (HU), literature (L), or fine arts (FA) elective	3
		MFE 290	3
	17		**16**

Junior

Fall	Hours	Spring	Hours
ME 383	3	MFE 385	4
ECE 320	3	AEM 264 or 311	3
History (H) or social behavioral sciences (SB) elective	3	MFE 342	3
GES 400	3	MFE 332	3
MFE 200/300-level Elective [2]	3	Humanities (H), literature (L), fine arts (FA) elective	3
	15		**16**

Senior

Fall	Hours	Spring	Hours
MFE 390 or ME 489	3	MFE 490 or ME 490	3
MFE 483	3	Approved Science Elective[4]	4
MFE 442	3	MFE 473	3
MFE 485	3	Humanities (H), literature (L), fine arts (FA) elective	3
MFE 300/400-level elective[3]	3	History (H) or social behavioral sciences (SB) elective	3
	15		**16**

Total Hours: 125

Footnote 1 - MFE 200-level Electives		Hours
MFE 201	Basics of Robotics	1
MFE 202	Basics of PLC	1
MFE 203	Basics of Auto & Matl Handling	1
CS 200	Software Design & Engineering	4
CS 201	Data Structures and Algorithms	0 or 4
CS 202	Web Foundations	0 or 3
CS 285	Spreadsheet Applications	0 or 3
MTE 275	Engineering Materials Lab	0 or 3
ST 260	Statistical Data Analysis	3
Other electives may be substituted for any of the above courses but require permission and approval of the program advisor and coordinator.		

Footnote 2 - MFE 200/300-level Electives		Hours
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
CS 302	Database Applications	0 or 3
CS 385	Advanced Spreadsheet Appl	3
ME 360	Contrl Instrumnt Components	0 or 3
ME 380	Engineering Leadership I	1
MTE 380	Synthesis,Proc & Mfg Matls.	3

Other electives may be substituted for any of the above courses but require permission and approval of the program advisor and coordinator.

Footnote 3 - MFE 300/400-level Electives		Hours
MFE 302	Advanced PLC	1
MFE 303	Adv Auto & Matl Handling	1
MFE 326	Process Monitoring and Control	1
MFE 338	Introduction to Industry 4.0	1
CE 414	Information Systems Design	3
CE 417	Advanced Project Management	3
CE 418	Engineering Management	3
CS 305	Adv. Comp. Database Systems	3
ECE 438	Intgr Circuit Fabr Prin	3
ME 421	Reliability & Maint. Engr.	3
ME 424	Automotive Manufacturing	3
ME 430	Fuzzy Set Theory & Application	3
ME 440	Failure of Engr Materials	3
ME 456	Mechatronics	3
ME 484	Product Innovation	3
MTE 455	Mech Behavior Of Mtls	4

Other electives may be substituted for any of the above courses but require permission and approval of the program advisor and coordinator.

Footnote 4 - Approved Science Electives		**Hours**
Select from the following:		
AY 101 & AY 102	Intro To Astronomy and Intro Astronomy Lab	
AY 203 & AY 204	Observational Astronomy and Solar System Astronomy	
BSC 108	Intro Biology Non Maj I	
BSC 109	Intro Biology Non Maj II	
BSC 114 & BSC 115	Principles Of Biology I and Laboratory Biology I	
BSC 118	Honors General Biology I	
CH 102	General Chemistry	
CH 118	Honors General Chemistry	
GEO 101	The Dynamic Earth	
GEO 102	The Earth Through Time	
GEO 105	Sustainable Earth	
GY 101	Atmospheric Proc & Patterns	
GY 102	Earth Surface Processes	
GY 207	Field Water and Climate	
PH 253 & PH 255	Intro Modern Physics and Modern Physics Lab	

Learn more about opportunities in this field at the Career Center

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Faculty

Professors

Jalili, Nader, Department Head

Agrawal, Ajay K.

Balasubramanian, Bharat

Krishnan, Sundar Rajan

Shen, Xiangrong

Shepard Jr., W. Steve

Srinivasan, Kalyan Jumar

Associate professors

Amini, Shahriar (Sean)

Ashford, Marcus D.

Bittle, Joshua A.

Fonseca, Daniel J.

Khandelwal, Bhpendra

Mahmoodi, S. Nima

Momeni, Kasra

Puzinauskas, Paulius V.

Todd, Beth Ann

Volkov, Alexey N.

Williams, Keith A.

Yoon, Hwan-Sik

Assistant professors

Carpenter, Joseph

Cousin, Christian A.

Davami, Keivan

Kasemer, Matthew

Kim, Hyun Jin

Martelli, Dario

Pakniyat, Ali

Patiballa, Sree Kalyan

Samadi, Forooza

Shah, Krishna

Vikas, Vishesh

Instructors

Hill, Lawrence

Koutahzadeh, Negin

Scott, Radley

Adjunct professor

Daniewicz, Steve

Adjunct assistant professor

Rasoulzadeh, Mojdeh

Professor emeritus

Woodbury, Keith A.