

# ADVANCED MANUFACTURING MINOR

Today's modern manufacturing environment is reliant on technology and requires a skilled and educated workforce. Students in the Minor in Advanced Manufacturing focus their study on one of four areas: manufacturing processes, manufacturing materials, applied robotics, or business management.

## Course Requirements for the Minor

The following courses, or their approved transfer equivalents, are required of all candidates for this minor.

Course	Title	Units
<b>Foundation</b>		
Select one of the following:		4
MATH 119	Precalculus Mathematics	
MATH 120	Analytic Geometry and Calculus	
Select one of the following:		4
PHYS 202A	General Physics I	
PHYS 204A	Physics for Students of Science and Engineering: Mechanics	
<b>Group Courses</b>		
Select one of the following groups:		20-22
Group 1-Manufacturing Processes Focus (p. 1)		
Group 2-Manufacturing Materials Focus (p. 1)		
Group 3-Applied Robotics Focus (p. 1)		
Group 4-Business Management Focus (p. 1)		
<b>Total Units</b>		<b>28-30</b>

## Group Courses

### Group 1- Manufacturing Processes Focus: 21 units

Course	Title	Units
AMAR 160	Manufacturing Processes	3
AMAR 260	Applied Advanced Manufacturing	4
AMAR 360	Computer Integrated Manufacturing	4
MECH 100	Graphics I	1
MECH 100L	Graphics I Laboratory	1
MECH 200	Graphics II	2
Select two of the following:		6
AMAR 352W	Industrial Management (W)	
AMAR 451	Quality Management	
AMAR 458	Project Management	
<b>Total Units</b>		<b>21</b>

### Group 2- Manufacturing Materials Focus: 22 units

Course	Title	Units
AMAR 160	Manufacturing Processes	3
AMAR 260	Applied Advanced Manufacturing	4
MECH 100	Graphics I	1
MECH 100L	Graphics I Laboratory	1
MECH 210	Materials Science and Engineering	3
Select one of the following:		4

CHEM 107	General Chemistry for Applied Sciences	
CHEM 111	General Chemistry I	
Select two of the following:		6
AMAR 316	Introduction to Plastics	
AMAR 318	Advanced Plastics & Composites	
AMAR 477	Nanoscale Device Manufacturing	
<b>Total Units</b>		<b>22</b>

### Group 3- Applied Robotics Focus: 20-22 units

Course	Title	Units
AMAR 420	Robotics for Advanced Manufacturing	4
MATH 121	Analytic Geometry and Calculus	4
MECH 208	Introduction to Technical Computing	2
Select one of the following:		3-4
AMAR 460	Robotic Manufacturing Systems	
CSCI 585	Robotics and Machine Intelligence	
Select one of the following:		4
EECE 211 & 211L	Linear Circuits I and Linear Circuits I Activity	
EECE 215	Practical Circuits and Electronics	
Select one of the following:		3-4
EECE 314	Bioinstrumentation	
EECE 344	Digital Systems Design	
MECA 380	Measurements and Instrumentation	
<b>Total Units</b>		<b>20-22</b>

### Group 4- Business Management Focus: 21 units

Course	Title	Units
AMAR 160	Manufacturing Processes	3
AMAR 260	Applied Advanced Manufacturing	4
AMAR/OSCM 451	Quality Management	3
MECH 100	Graphics I	1
MECH 100L	Graphics I Laboratory	1
Select one of the following:		3
MATH 105	Introduction to Statistics	
MATH 108	Statistics of Business and Economics	
Select two of the following:		6
AMAR 352W	Industrial Management (W)	
AMAR 458	Project Management	
BLAW 413	Employment Law	
BSIS 308	Decision Analysis for Business	
ECON 355	The Economics of Government Regulations	
MGMT 303	Survey of Management	
MINS 301	Corporate Technology Integration	
OSCM 306	Operations Management	
OSCM 440	Supply Chain Management	
OSCM 441	Purchasing and Global Sourcing	
OSCM 442	Production Planning and Inventory Control	
<b>Total Units</b>		<b>21</b>