

METROPOLITAN STATE UNIVERSITY OF DENVER

## ADVANCED MANUFACTURING SCIENCES BACHELOR OF SCIENCE

### Interested in a multidisciplinary degree in advanced manufacturing? Transfer 31 general education credits plus machining and CAD credits toward this degree!

The Advanced Manufacturing Sciences B.S. degree is a multidisciplinary degree with a first-of-its kind curriculum! All AMS students are required to take a complete set of core courses which are sprinkled throughout the 4-year program. These core courses lie at the heart of the AMS B.S. degree program and are designed to introduce all AMS students, regardless of their chosen concentration area, to critical subject matter and experiences with regard to working as a professional in an advanced manufacturing environment. The core courses are taught by faculty associated with a number of different contributing departments, which reflects the multi-disciplinary nature of the Advanced Manufacturing Sciences B.S. degree program.

An important element of the core course set is the "Professional Internship" course (AMS 4950), which gives our students the invaluable opportunity to work, onsite, at one of our manufacturing company partners. This represents an important opportunity to learn what it's like to work in a multidisciplinary manufacturing environment on a "real-life" project, and, to establish critical industry contacts, with regard to future employment opportunities.

AMS students can elect to concentrate their studies within the AMS B.S. degree program in one of eight concentration areas: Aerospace Technology, Civil Engineering/Construction, Computer Information Systems (including Cyber-Security component), Computer Sciences (including Cyber-Security component), Electrical Engineering Technology, Industrial Design, Mechanical Engineering Technology, and Operations Management. For more information and updates regarding this degree, contact Stephanie Allen, Senior Advising Coordinator, College of Professional Studies, MSU Denver, at 303-556-3304.

**Learn more: [msudenver.edu/advanced-manufacturing/degree-overview/](https://msudenver.edu/advanced-manufacturing/degree-overview/)**



The Colorado Helps Advanced Manufacturing Program (CHAMP) is a U.S. Department of Labor TAACCCT-funded grant project serving to increase the attainment of degrees and certifications in manufacturing in high demand fields in Colorado. The Advanced Manufacturing Sciences B.S. Degree is a non-engineering, professional degree being offered by MSU Denver in the fall of 2017. It is a multidisciplinary degree with a first-of-its kind curriculum that integrates aerospace science; industrial design; civil, mechanical and electrical engineering technology; and computer science and computer information systems! This

fact sheet was created with CHAMP Grant funds to notify RRCC students of their transfer options to MSU Denver for this new, CHAMP-supported advanced manufacturing degree and their transfer credits toward its completion.

This fact sheet was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration. The fact sheet was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites, and including, but not limited to accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability or ownership. Red Rocks Community College is committed to diversity in its people and programs. The College is an equal opportunity educational institution and does not discriminate on the basis of disability, race, creed, color, gender, sexual orientation, gender expression, religion, age, national origin, or ancestry or any other category protected by applicable law. The College has designated the Human Resources Director as its Equal Opportunity Employment Officer and Title IX Administrator with the responsibility to coordinate its civil rights compliance activities and grievance procedures. Report all concerns or complaints relating to discrimination or harassment to the Title IX/EO Coordinator(s): Arnie Oudenhoven, Executive Director of HR, Title IX Coordinator, Title VII/Equal Opportunity Coordinator, ADA/Sec 504 Coordinator, 13300 West Sixth Avenue, Lakewood, Co 80228. 303.914.6298, [arnie.oudenhoven@rrcc.edu](mailto:arnie.oudenhoven@rrcc.edu).

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## ADVANCED MANUFACTURING SCIENCES (AMS) B.S. DEGREE AT MSU DENVER (FALL 2017) – 120 CREDITS

### GENERAL EDUCATION TRANSFER CREDITS: Complete the courses outlined below before transferring to MSU Denver. (31 CREDITS)

GENERAL EDUCATION KNOWLEDGE AREA	CREDITS	RRCC COURSE NO.	COURSE TITLE & PATHWAYS CATEGORY "C" grade or better
Written Communication	3 3	ENG 121 ENG 122	English Comp. I (GT-CO1) English Comp. II (GT-CO2)
Oral Communication	3	COM 115	Public Speaking
Art & Humanities	6	Contact an RRCC advisor to obtain information regarding course transfer.	*Any GT-AH1, GT-AH2, GT-AH3 Preferred course: PHI 112 Ethics
Social & Behavioral Science	3	ECO 202	Microeconomics (GT-SS1)
History	3	Contact an RRCC advisor to obtain information regarding course transfer.	**Any GT-HI Pathway Course
Natural & Physical Sciences	5 1	PHY III Recommend taking PHY 1020, offered only at MSU Denver	College Physics/College Physics I Lab ***Physics for Advanced Technology
Mathematics	4	MAT 121	College Algebra

\*Students are encouraged to complete one of the following to fulfill 3 credits of Arts and Humanities and MSU Denver's Multicultural requirement: LIT 205, LIT 259, or MUS 125.

\*\*Students are encouraged to complete HIS 101, 102, 111, 112, 205, 243, 244, 249, or 255 for History, as these courses also fulfill MSU Denver's Global Diversity requirement.

\*\*\*One additional credit is needed to fulfill 6 total credits for Natural & Physical Sciences.

### MACHINING AND CAD TRANSFER CREDITS: MET 1010, MET 1200, and MET 1310 will transfer for AMS Core Courses; MET 1210, MET 3260, and MET 3410 will transfer for AMS Electives for all AMS concentrations other than the Electrical Engineering Technology and Computer Science concentrations.

MSU COURSE	CREDITS	RRCC COURSE NO. & TITLE (approved for articulation)
MET 1010 Manufacturing Processes	3	Any one of the following: MAC 110 Intro. to Engine Lathe MAC 120 Intro. to Milling Machine (Additional courses approved for transfer with a "C" grade or better: MAC 101 Intro. to Machine Shop, MTE 101 Intro. to Manufacturing, and MTE 120 Manufacturing Processes)
MET 1200 Technical Drawing I	3	Any one of the following: CAD 102 Computer Aided Drafting II (CAD 101 is a prerequisite for CAD 102) MAC 245 CAD/CAM 3D (cannot count towards both MET 1200 and MET 1210) (Additional courses approved for transfer with a "C" grade or better: CAD 100 Print Reading for CAD, EGT 101 Technical Drafting I, EGT 102 Technical Drafting II, MAC 102 Print Reading for Machinists, and MAC 240 CAD/CAM 2D)
MET 1210 3D Modeling	3	MAC 245 CAD/CAM 3D (cannot count towards both MET 1200 and MET 1210) (Additional courses approved for transfer with a "C" grade or better: CAD 153 Intro. to Pro Engineer/Basics, CAD 240 Inventor I/Autodesk, CAD 244 Advanced Inventor, and CAD 255 SolidWorks/Mechanical)
MET 1310 Principles of Quality Assurance	3	Any one of the following: MAC 250 Advanced Inspection Techniques MAC 266 Advanced Inspection Techniques II MAC 267 Metrology Maintenance
MET 3260 Direct Digital Mfg.	3	CAD 262 3D Printing* (CAD 202 is a prerequisite for CAD 262)
MET 3410 Geometric Dimensioning and Tolerance	3	EGT 205 Geometric Dimension/Tolerance*

\*This course will meet the requirements for this upper division MET course but will not be counted toward the 40 hours of required upper division credit required for the AMS B.S. degree from MSU Denver.