Program Description
Digital Manufacturing technologists use principles and theories of science, technology, engineering, art, and mathematics (STEAM) to solve technical problems in today's manufacturing environments. An engineering technician, today, will combine fundamental principles of mechanical engineering technology, digital technology, and computer automation knowledge utilizing electrical and electronic circuits to design, develop, test, and manufacture systems.

Advanced digital manufacturing, typically called 3D printing, is expanding new dimensions found in traditional manufacturing settings. Increasingly our high-technology economy is dependent on having a supply of qualified and skilled "digital workers" who possess skills in computer-based design/simulation, electronics, programming, mechanics, 3D printing, and manufacturing automation to develop and maintain advanced digital-based manufacturing systems used in business and today's industry.

This program prepares students to work as applied digital technologists in industries where manufacturing process utilize systems of control and automation in manufacturing. Graduates of the Additive Digital Manufacturing program may develop and test industrial process control systems, supervise the building and testing of prototypes including 3D printing, supervise and conduct the installation and operation of automated machine systems, and work in the rapidly growing IoT (Internet of Everything) field. Graduates will be able to calibrate and control automated machine cells, assist in applied research under the direction of scientists and engineers, and set up and operate specialized diagnostic equipment in order to test, trouble shoot, and analyze performance.

The program has an emphasis on communication, leadership, project management, and digital manufacturing ecosystems.

Program Prerequisites
None

Special Instructions
None

MODEL COURSE SEQUENCE
Please note that this is a sample course sequence. Individual schedules will vary depending upon student needs, goals, and availability. Students are recommended to meet with their advisor, counselor, or faculty program instructors to create an individualized plan that includes prerequisites and application requirements. For detailed program information see the Century College website. **This information is subject to change.**

Semester 1		
Course ID	Title	Credits
ECAD 1025	How to Make Almost Anything	3
ECAD 1060	Materials and Manufacturing Processes	3
ECAD 2053	Introduction to SolidWorks	3
ENGR 1020	Introduction to Engineering	4
ENGL 1021	Composition I	4

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Total		**17**

Semester 2		
Course ID	Title	Credits
ECAD 2075	Advanced CAD	3
CMAE 1514	Safety Awareness	2
CSCI 1060	Introduction to Programming with Python	3
RNEW 1507	Digital Electronics	2
ADM 2010	Additive Manufacturing Processes	3
COMM 1021 COMM 1031 COMM 1041 COMM 1051	Fundamentals of Public Speaking OR Interpersonal Communication OR Small Group Communication OR Intercultural Communication	3
Total		**16**

Semester 3		
Course ID	Title	Credits
RNEW 2543	Programmable Logic Control Fundamentals	3
CMAE 1522	Quality Practices	2
ADM 2020	Robotics and Automated Systems Design	3
PHYS 1020	Physics Concepts	4
Total		**12**

Semester 4		
Course ID	Title	Credits
ADM 2030	Cell Integration	3
ADM 2080	Enterprise System Integration Capstone	3
ADM 2780	Internship (recommended) OR Career/Occupational Elective	3
MnTC Goal 5: History/Social/Behavioral Sciences		3
MnTC Goal 6: Humanities/Fine Arts (ART 1025 - recommended)		3
Total		**15**

PROGRAM REQUIREMENTS

Career/Occupational Requirements

COURSE LIST		
Course ID	Title	Credits
ECAD 1060	Materials and Manufacturing Processes	3
ECAD 2053	Introduction to SolidWorks	3
ECAD 2075	Advanced CAD	3
ECAD 1025	How to Make Almost Anything	3
ENGR 1020	Introduction to Engineering	4

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CMAE 1514	Safety Awareness	2
CMAE 1522	Quality Practices	2
CSCI 1060	Introduction to Programming with Python	3
RNEW 1507	Digital Electronics	3
RNEW 2543	Programmable Logic Control Fundamentals	3
ADM 2010	Additive Manufacturing Processes	3
ADM 2020	Robotics and Automated Systems Design	3
ADM 2030	Cell Integration	3
ADM 2080	Enterprise System Integration Capstone	2
Total		**40**

Career/Occupational Elective Requirements

COURSE LIST		
Course ID	Title	Credits
Select 3 credits		
ADM 2780	Internship (Recommended)	*1-6*
ECT 1030	Linux Operating Systems	*3*
ECT 1070	Introduction to PowerShell Scripting	*3*
ENGL 1025	Technical and Professional Writing	*3*
ITT 1031	Introduction to Networks (CCNA-1)	*3*
CMAE 1518	Manufacturing Processes and Production	*2*
CMAE 1526	Maintenance Awareness	*2*
ENGR 2020	Robotics	*4*
ENGR 2095	Introduction to Digital Design	*4*
Total		**3**

MnTC/General Education Requirements

COURSE LIST	**Credits**
Goal 1: Communication	**7**
ENGL 1021 (grade of *C* or higher required)	4
COMM 1021, 1031, 1041, 1051 (Select one)	3
Goal 2: Critical Thinking Fulfilled when all MnTC goals for this degree are complete.	
Goal 3 and/or 4: Sciences/Math/Logical Reasoning Minimum of 3 credits; one course from either Goal 3 and/or Goal 4**. NOTE:** Goal 3 courses do not have to be lab courses. Goal 4 courses must be numbered between Math 1020 and 1082, or PHIL 1041	**4**
PHYS 1020	4
Goal 5: History/Social/Behavioral Sciences Minimum of 3 credits.	**3**
Goal 6: Humanities/Fine Arts	**3**

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Minimum of 3 credits.	
ART 1025 recommended	
Goals 7-10: Theme Goals Three credits in one Goal area selected from Goals 7, 8, 9 or 10 are required. Many courses from Goals 1-6 also meet Goals 7-10. One course may fulfill a maximum of two Goals. Credits count only once.	
Goal 7: Human Diversity	
Goal 8: Global Perspectives	
Goal 9: Ethical and Civic Responsibility	
Goal 10: People and the Environment	
Total	**17**

MnTC Elective Requirements
None

Additional Elective Requirements
None

Additional Requirements
None

General Requirements for Degrees, Diplomas, and Certificates
See Century College Policy 3.17.0.1

Program Note
The following courses are offered both at Century College and through consortium colleges within MnSCU: CMAE 1514, 1518, 1522, 1526, RNEW 1507 and 2543. See 360 Center of Excellence at www.360mn.org for more information. ADM 2780 Internship may also be completed in the Summer term.

Transfer, Articulation Agreements, and Partnerships
See the Century College website for information regarding transfer.
This program is intended primarily for employment preparation rather than transfer to a four-year institution. Some courses may not transfer to a number of four-year colleges. If you are considering the possibility of transfer, you may wish to talk with your advisor, counselor, or program instructor before registering to discuss your goals, look at programs designed for transfer, and develop a plan.

Program Contact Information
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