2019-20 GRADUATION GUIDE

Manufacturing/Engineering Technology

Associate of Applied Science Degree

Holland code family: Doers

www.roguecc.edu/Counseling/HollandCodes/test

About the Program

This two-year program integrates conventional manufacturing techniques with computer integrated manufacturing skills. Computer aided drafting (CAD) and computer aided manufacturing (CAM) are used as basic tools in the manufacturing engineering process. In addition to technical training, students receive a solid education in mathematics and physical science, along with human relations and computer skills courses.

Graduates typically enter the workforce as computer aided design drafters, entry-level machinists, or computer numerical control (CNC) machine operators or engineering assistants. With additional on-the-job experience, this training facilitates movement into fields such as tool and die maker, quality control inspector, computer aided manufacturing (CAM) programmer, or lower-level supervisory positions. For transfer to a four-year institution in engineering, additional or alternate transfer courses will be recommended.

Program Learning Outcomes

The curriculum in RCC courses is derived from a set of identified learning outcomes that are relevant to the discipline. Program learning outcomes for manufacturing programs are:

Operate, set up, and program manual and CNC mills and lathes to print specifications.

Interpret and create mechanical blueprints to industry standards.

Follow, develop, and troubleshoot manufacturing processes and procedures.

Demonstrate the ability to adhere to personal and industry safety standards to protect personnel and equipment.

Entry Requirements

Students are required to complete the Placement Process to determine skill level and readiness in math, reading, and writing. As part of their training program, students must begin with the courses within their skill level as determined through the Placement Process. In addition, students may also be required to enroll in classes that would increase their employability and success.

Advanced Standing

Coursework from accredited colleges and universities will be accepted in accordance with college registration policies and with the Manufacturing/Engineering Technology Department chair's recommendation. In order to ensure that coursework is current, program courses over four years old must be reviewed and approved by the appropriate program coordinator before being accepted toward core requirements. Students must complete coursework in their major at a "C" or better level before proceeding to advanced coursework. Each College Now credit student must meet with the program coordinator to determine placement.

Credits earned in the successful completion of Career Pathways certificates can be applied to other certificates and degrees in the Career Pathway. For more information, speak to a program advisor and review the roadmap at www.roguecc.edu/Programs/CareerPathways.

Graduation Requirements

Students are required to complete all courses in this program with a grade of "C" or better to receive their degrees. Certain required courses are graded on a pass/no pass basis only. A grade of "P" for these courses indicates a student earned the equivalent of a "C" or better grade.

Prerequisites

Course No.	Course Title	Credits
CS/CIS	Approved 3-4 credit Computer Science or Computer Information Science class, CS120/CIS120 or above, or documented computer proficiency within the past ten years.[1]	0-4
MEC102	Basic Hand Tools or demonstrated proficiency	0-3
MTH20	Pre-algebra or designated placement test score	0-4
RD90/WR90	College Reading/Fundamentals of Composition or WR91 Fundamentals of Academic Literacy (WR91 substitutes for both RD90 and WR90) or designated placement test score	0-8
Total Prerequisite Credits		**0-19**

First Year Required Courses

Course No.	Course Title	Credits
First Term		
MET101	Mechanical Drafting	3
MET105	Blueprint Reading - Mechanical	3

MFG101	Introduction to Manufacturing	3
MFG116	Metrology	2
MFG121	Manufacturing Processes I	4
MTH63	Applied Algebra I or MTH60 Fundamentals of Algebra I or higher level math	4
		19

Second Term

MET104	Applied Shop Practices or MTH112 Elementary Functions	3-4
MET121	Computer Aided Drafting I: Mechanical (SolidWorks)	3
MET160	Materials and Metallurgy or WLD225 Industrial Metallurgy	3
MFG122	Manufacturing Processes II	4
MFG140	CNC Controls	2
WR115	Introduction to Expository Writing or BT113 Business English I or higher level composition	3-4
		18-20

Third Term

LIB127	Introduction to Academic Research, or LIB101 Introduction to Information Literacy	1
MET122	Computer Aided Drafting II: Mechanical (SolidWorks)	3
PSY101	Psychology of Human Relations or BT101 Human Relations in Organizations	3
MFG123	Manufacturing Processes III	4
MFG241	CNC Programming – Mill	4
		15

Total First Year Credits **52-54**

Second Year Required Courses

Course No.	Course Title	Credits
Fourth Term		
EET101	Introduction to Electronics	3
GS104	Physical Science with lab or approved program elective	4
MFG230	Statistics and Quality Control	3
MFG242	CAM I: Mastercam	4
WLD101	Welding Fundamentals I	3
		17

Fifth Term

MFG220	Research and Development Prototyping or MFG280 Cooperative Work Experience/Manufacturing	4

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MFG243	CAM II: Mastercam	4
WLD102	Welding Fundamentals II or approved program elective	3
WR121	English Composition I or	
	BT114 Business English II or higher level composition	4
——	Approved program electives	1-4
		16-19

Sixth Term

HE112	Emergency First Aid or approved health/first aid elective (see this catalog for approved list of electives)	1-3
MET111	Computer Aided Drafting I: Mechanical (Autodesk Inventor)	3
MFG255	Computer Integrated Manufacturing or	
	MFG280 Cooperative Work Experience/Manufacturing	4
MFG262	Lean Manufacturing	3
——	Approved program electives	1-5
		12-18

Total Second Year Credits	**45-54**
TOTAL PROGRAM CREDITS	**97-108**

Approved Program Electives

(minimum 2-9 credits required)

Course No.	Course Title	Credits
BA109	Ready, Set, Work: Techniques for Landing a Job	2
CHEM104	Introductory Chemistry with lab and recitation	5
CHEM105	Introductory Organic Chemistry with lab	4
CHEM105R	Introductory Organic Chemistry Recitation	1
CHEM106	Introductory Biochemistry with lab	4
CHEM106R	Introductory Biochemistry Recitation	1
CHEM221,222,223	General Chemistry I, II, III with lab and recitation	5-5-5
CIS	Any CIS applications course (CIS125SS highly recommended)	variable
CIS140	Introduction to Operating Systems	4
CIS179	Introduction to Networks	4
CIS240	Advanced Operating Systems	4
CS161J	Computer Science I (Java)	4
CS161U	Computer Science I (C++)	4
CS162J	Computer Science II (Java)	4
CS162U	Computer Science II (C++)	4
EET106	Electronic Assembly	3
EET129	Introduction to Embedded Systems	3
EET225	Electronics Troubleshooting	3
ENGR101	Engineering Orientation I: Careers, Skills and Computer Tools	2
ENGR102	Engineering Orientation II: Careers, Skills and Computer Tools	2
ENGR103	Engineering Orientation III: Careers, Skills and Computer Tools	2
ENGR201	Electrical Fundamentals with lab	3
ENGR202	Electrical Fundamentals II with Lab	3
ENGR211	Statics	3
ENGR212	Dynamics	3
ENGR213	Strength of Materials	3
MEC103	Industrial Safety (Highly Recommended)	1
MEC114	Safety for Industry	3
MEC116	Quality Practices and Measurement	3
MEC118	Manufacturing Processes and Production	3
MEC120	Maintenance Awareness	4
MEC130	Hydraulics I	3
MEC140	Green Production	2
MEC149	Electric Motor Control	4
MEC240	Robotics I	3
MET112,113	Computer Aided Drafting II, III: Mechanical (Autodesk Inventor)	3-3
MET123	Computer Aided Drafting III: Mechanical (SolidWorks)	3
MFG199	Selected Topics in Manufacturing	variable
MFG210	AC/DC Electrical Systems for Manufacturing	3
MFG211	Manufacturing Power and Control Electronics	4
MFG215	Electrical Control Systems and Sensors for Manufacturing	3
MFG244	CNC Programming – Lathe	3
MFG280	Cooperative Work Experience/Manufacturing	variable
MFG280S	CWE/Manufacturing Seminar	1
MFG291	Laser Cutting and Engraving Fundamentals	2
MTH65	Fundamentals of Algebra II [2] or higher level math courses	variable
PH201,202,203	General Physics I, II, III with lab and recitation	5-5-5
PH211,212,213	General Physics (Calculus Based) I, II, III with lab and recitation	5-5-5
WLD102	Welding Fundamentals II (if not taken core requirement)	3
WLD111,112,113	Technology of Industrial Welding I, II, III	6-6-6
WLD111M	Technology of Industrial Welding for Manufacturing	6
WLD121,122	Fabrication and Repair Practices I, II	5-5
WLD250P	Selected Topics: CNC Plasma Cutting	3

[1] Required for graduation.

[2] If not taken as required course.

For more information contact the Manufacturing and Engineering Technology Department:

Grants Pass or Medford. 541-245-7902

Toll free in Oregon . . . . . 800-411-6508, Ext. 7902

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Web address . . . . . www.roguecc.edu/manufacturing

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This advising guide is for advising purposes only. Please see current college catalog for additional information on specific college policies and graduation requirements.

RCC is an open institution and does not discriminate. For RCC's non-discrimination policy and a full list of regulatory specific contact persons visit the following webpage: www.roguecc.edu/nondiscrimination.

RCC
Rogue Community College