

Mechanical Engineering Technology (A40320)

ENGINEERING AND TECHNOLOGY PATHWAYS

These curriculums are designed to prepare students through the study and application of principles from mathematics, natural sciences, and technology and applied processes based on these subjects.

Course work includes mathematics, natural sciences, engineering sciences and technology.

Graduates should qualify to obtain occupations such as technical service providers, materials and technologies testing services, process improvement technicians, engineering technicians, industrial and technology managers, or research technicians.

PROGRAM DESCRIPTION

A course of study that prepares the students to use basic engineering principles and technical skills to design, develop, test, and troubleshoot projects involving mechanical systems. Includes instruction in principles of mechanics, applications to specific engineering systems, design testing procedures, prototype and operational testing and inspection procedures, manufacturing system-testing procedures, test equipment operation and maintenance, computer applications, critical thinking, planning and problem solving, and oral and written communications. Graduates of the curriculum will find employment opportunities in the manufacturing or service sectors of engineering technology. Engineering technicians may obtain professional certification by application to organizations such as ASQC, SME, and NICET.

COURSE REQUIREMENTS

Richmond Community College provides day and evening course sequences for selected programs to enable students to better plan what courses to take to reach their educational goals. However, given the continued increase in the use of technology in instruction and increasing student demand for distance learning courses, the College may offer hybrid, online, web-based and information highway courses in place of traditional courses in any course sequence that is listed. Therefore, students should be aware of this possibility and prepare themselves to successfully function in a hybrid, online, web-based, or information highway course.

		Work/			
		Class	Lab	Clinical	Credit
A. General Education Courses					
1. Required Courses					
ENG	111 Writing and Inquiry	3	0	0	3
ENG	112 Writing/Research in the Disciplines	3	0	0	3
MAT	171 Precalculus Algebra	3	2	0	4
	Humanities/Fine Arts Elective*	3	0	0	3
	Social/Behavioral Sciences Elective*	3	0	0	3
B. Major Courses					
1. Core Courses					
<i>To receive a degree, diploma or certificate from RCC, a student must have a grade of "C" or better in all core courses for the program of study.</i>					
DFT	151 CAD I	2	3	0	3
DFT	153 CAD III	2	3	0	3
EGR	250 Statics/Strengths of Materials	4	3	0	5

	HYD 110	Hydraulics/Pneumatics I	2	3	0	3
	MEC 161	Manufacturing Process I	3	0	0	3
	MEC 180	Engineering Materials	2	3	0	3
	PHY 151	College Physics I	3	2	0	4
2. Other Major Courses						
	DFT 110	Basic Drafting	1	2	0	2
	DFT 115	Architectural Drafting	1	2	0	2
	DFT 152	CAD II	2	3	0	3
	ISC 132	Manufacturing Quality Control	2	3	0	3
	MAT 172	Precalculus Trigonometry	3	2	0	4
	MAT 271	Calculus I	3	2	0	4
	MEC 110	Introduction to CAD/CAM	1	2	0	2
	MEC 270	Machine Design	3	3	0	4
	MEC 271	Machine Design Project	0	3	0	1
	PLA 120	Injection Molding	2	3	0	3
C. Other Required Courses						
	ACA 122	College Transfer Success	0	2	0	1

Total Credit Hours **69**

*Approved Electives are listed on the page before the Course Descriptions.

SEMESTER SCHEDULE MECHANICAL ENGINEERING TECHNOLOGY (DAY)

			Work/			
			Class	Lab	Clinical	Credit
First Year – Fall Semester						
ACA	122	College Transfer Success	0	2	0	1
DFT	110	Basic Drafting	1	2	0	2
DFT	151	CAD I	2	3	0	3
ENG	111	Writing and Inquiry	3	0	0	3
MEC	161	Manufacturing Process I	3	0	0	3
MAT	171	Precalculus Algebra	3	2	0	4
			—	—	—	—
			12	9	0	16
First Year – Spring Semester						
DFT	115	Architectural Drafting	1	2	0	2
DFT	152	CAD II	2	3	0	3
ENG	112	Writing/Research in the Disciplines	3	0	0	3
MAT	172	Precalculus Trigonometry	3	0	0	3
MEC	180	Engineering Materials	2	3	0	3
		Humanities/Fine Arts Elective*	3	0	0	3
			—	—	—	—
			14	10	0	18

Second Year – Fall Semester						
DFT	153	CAD III	2	3	0	3
EGR	250	Statics & Strength of Materials	4	3	0	5
MAT	271	Calculus I	3	2	0	4
ISC	132	Manufacturing Quality Control	2	2	0	3
PHY	151	College Physics I	3	2	0	4
PLA	120	Injection Molding	2	3	0	3
			—	—	—	—
			16	15	0	22
Second Year – Spring Semester						
HYD	110	Hydraulics/Pneumatics I	2	3	0	3
MEC	110	Introduction to CAD/CAM	1	2	0	2
MEC	270	Machine Design	3	3	0	4
MEC	271	Machine Design Project	0	3	0	1
		Social/Behavioral Sciences Elective*	3	0	0	3
			—	—	—	—
			9	11	0	13
Total Credit Hours					69	

*Approved Electives are listed on the page before the Course Descriptions.

SEMESTER SCHEDULE MECHANICAL ENGINEERING TECHNOLOGY (DIPLOMA) (D40320) (DAY)

			Work/			
			Class	Lab	Clinical	Credit
First Year – Fall Semester						
ACA	122	College Transfer Success	0	2	0	1
DFT	110	Basic Drafting	1	2	0	2
DFT	151	CAD I	2	3	0	3
ENG	111	Writing and Inquiry	3	0	0	3
MEC	161	Manufacturing Processes I	3	0	0	3
MAT	171	Precalculus Algebra	3	2	0	4
			—	—	—	—
			12	9	0	16
First Year – Spring Semester						
DFT	115	Architectural Drafting	1	2	0	2
DFT	152	CAD II	2	3	0	3
MAT	172	Precalculus Trigonometry	3	2	0	4
MEC	180	Engineering Materials	2	3	0	3
		Humanities/Fine Arts Elective*	3	0	0	3
			—	—	—	—
			11	10	0	15
Second Year – Fall Semester						
DFT	153	CAD III	2	3	0	3
ISC	132	Manufacturing Quality Control	2	3	0	3

PHY	151	College Physics I	3	2	0	4
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			7	8	0	10

Total Credit Hours**41**

*Approved Electives are listed on the page before the Course Descriptions.

SEMESTER SCHEDULE**MET: COMPUTER-AIDED DRAFTING (CERTIFICATE) (C40320)**

			Class	Lab	Work/ Clinical	Credit
DFT	110	Basic Drafting	1	2	0	2
DFT	115	Architectural Drafting I	1	2	0	2
DFT	151	CAD I	2	3	0	3
DFT	152	CAD II	2	3	0	3
DFT	153	CAD III	2	3	0	3
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			8	13	0	13

Total Credit Hours**13**

Program Completion Guide

ASSOCIATE IN APPLIED SCIENCE - MECHANICAL ENGINEERING TECHNOLOGY (A40320)

Student Name: _____ ID#: _____ Date of Enrollment: _____

Section I: Developmental Courses (if needed)

Courses	Scores	Cr.	Prerequisites/ Corequisites	Grade	Notes/Semester
DMA 010 Operations with Integers	<7 on DAP	1	Pre: None		
DMA 020 Fractions and Decimals	<7 on DAP	1	Pre: DMA 010		
DMA 030 Propor/Ratio/Rate/Percent	<7 on DAP	1	Pre: DMA 010-020		
DMA 040 Express/Lin Equat/Inequal	<7 on DAP	1	Pre: DMA 010-030 or MAT 060		
DMA 050 Graphs/Equations of Lines	<7 on DAP	1	Pre: DMA 010-040 or DMA 040 and MAT 060		
DMA 060 Polynomial/Quadratic Appl (Required if taking MAT 171)	<7 on DAP	1	Pre: DMA 010-050 or MAT 060 and MAT 070		
DMA 070 Rational Express/Equation (Required if taking MAT 171)		1	Pre: DMA 010-060 or MAT 060 and MAT 070		
DMA 080 Radical Express/Equations (Required if taking MAT 171)		1	Pre: DMA 010-070 or MAT 060 and MAT 070		
DRE 096 Integrated Reading and Writing	104-116	3	Pre: None		
DRE 097 Integrated Reading Writing II	117-135	3	Pre: DRE 096		
DRE 098 Integrated Reading Writing III	136-150	3	Pre: DRE 097		

Section II:**A. Mechanical Engineering Technology/Computer-Aided Drafting Certificate (C40320) Course Requirements 13 credit hours: Complete Section I (as required) and Section II, A.**

Courses	Cr.	Recommended Semester	Prerequisites/ Corequisites	Semester Registered/ Planned	Semester Completed/ Grade
DFT 110 Basic Drafting	2	1 st year - fall	None		
DFT 151 CAD I*	3	1 st year - fall	Pre: DMA 010-030 or MAT 060, DRE 097 or RED 080		
DFT 152 CAD II*	3	1 st year - spring	Pre: DFT 151		
DFT 115 Architectural Drawing	2	1 st year – spring	Pre: DFT 151		
DFT 153 CAD III*	3	2 nd year – fall	Pre: DFT 151		

B. Mechanical Engineering Technology Diploma (D40320) Course Requirements 41 credit hours: Complete Sections I (as required) and Section II, A, and B. (Also must take one Humanities/Fine Arts elective.)

Courses	Cr.	Recommended Semester	Prerequisites/ Corequisites	Semester Registered/ Planned	Semester Completed/ Grade
ACA 122 College Transfer Success	1	1 st year - fall	None		
MAT 171 Precalculus Algebra	4	1 st year - fall	Pre: DMA 010-080 or MAT 080		
MEC 161 Manufacturing Processes I*	3	1 st year - fall	None		
ENG 111 Writing and Inquiry	3	1 st year - fall	Pre: DRE 098 or ENG 090 and RED 090 Co: ACA 122		
ISC 132 Manufacturing Quality Control	3	2 nd year – fall	None		
MAT 172 Precalculus Trigonometry	4	1 st year - spring	Pre: MAT 171		
PHY 151 College Physics I	4	2 nd year – fall	Pre: DRE 098 or RED 090, MAT 171		
MEC 180 Engineering Materials	3	2 nd year-Spring	None		

C. Mechanical Engineering Technology Associate in Applied Science Degree Course Requirements 69 credit hours: Complete Section I (as required) and Section II, A, B, and C.

Courses	Cr.	Recommended Semester	Prerequisites/ Corequisites	Semester Registered/ Planned	Semester Completed/ Grade
ENG 112 Writing/Research in the Disciplines	3	1 st year - spring	Pre: ENG 111		

MAT 271 Calculus I	4	2 nd year - fall	Pre: MAT 172		
EGR 250 Statics/Strength of Materials*	5	2 nd year - fall	Pre: MAT 172		
PLA 120 Injection Molding	3	2 nd year - fall	Pre: DMA 010-030 or MAT 060, DRE 097 or RED 080		
HYD 110 Hydraulics/Pneumatics I	3	2 nd year – spring	Pre: DMA 010-030 or MAT 060		
MEC 110 Introduction to CAD/CAM	2	2 nd year – spring	Pre: DMA 010-060 or MAT 070, DRE 097 Co: DRE 098		
MEC 270 Machine Design	4	2 nd year – spring	Pre: DFT 151, EGR 250, MEC 180		
MEC 271 Machine Design Project	1	2 nd year – spring	Pre: DFT 151, EGR 250, MEC 180 Co: MEC 270		

Electives: (All degree seeking students must take one Humanities/Fine Arts and one Social/Behavioral Sciences elective from lists below unless a specific course is required above.)

Humanities/Fine Arts Electives (3 credits)** Courses with the following prefixes will satisfy this requirement: ART, DRA, ENG (literature courses only), HUM, MUS, PHI, REL, and SPA (Intermediate Spanish I only).			
Courses offered at RCC: ART 111, DRA 111, ENG 131, ENG 231, ENG 232, MUS 110, PHI 240, REL 211, REL 212, SPA 211			
Course	Recommended Semester	Semester Registered/Planned	Semester Completed/Grade
	1 st year - spring		

Social/Behavioral Sciences Electives (3 credits)** (Courses with the following prefixes will satisfy this requirement: ANT, ECO+, GEO, HIS, POL, PSY, and SOC) +Some business and accounting curricula require economics and do not accept ECO courses as fulfillment of this elective requirement.)			
Courses offered at RCC: ANT 220, HIS 111, HIS 112, HIS 131, HIS 132, PSY 150, PSY 241, SOC 210, SOC 213			
Course	Recommended Semester	Semester Registered/Planned	Semester Completed/Grade
	2 nd year - spring		

NOTES: *All courses must be completed with a grade of "C" or better.
**See course catalog for prerequisite and/or corequisite requirements.

Students please read the following and sign below.

I understand that as an RCC student, I am ultimately responsible for my schedule. I understand that I must complete each course with a grade of "C" or better and follow the established course sequence or my ability to graduate on time may be affected.
My advisor has information regarding other colleges and transfer opportunities that I can investigate after completing my degree/diploma/certificate, and I understand that if I would like more information I can schedule an appointment with him/her.

Student Name: _____ Student Signature: _____ Date: _____

Advisor Name: _____ Advisor Signature: _____ Date: _____

Student Name: _____ Student Signature: _____ Date: _____

Advisor Name: _____ Advisor Signature: _____ Date: _____

Student Name: _____ Student Signature: _____ Date: _____

Advisor Name: _____ Advisor Signature: _____ Date: _____

Student Name: _____ Student Signature: _____ Date: _____

Advisor Name: _____ Advisor Signature: _____ Date: _____