

Grant Title: **Accelerated Pathways in Advanced Manufacturing (APAM)**

Author: **Community College of Rhode Island**

Link: <http://www.ccri.edu/>

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DOL Disclaimer Statement:



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PROGRAM PROPOSAL APPROVAL TRACKING FORM

Name of Proposal: Certificate – Advanced Manufacturing Machining (ETMM)

SIGNATURES REQUIRED PRIOR TO SUBMISSION

Academic Department		
Proposal Originator(s):	<div style="border-bottom: 1px solid black; text-align: center;">Signature</div>	<div style="border-bottom: 1px solid black; text-align: center;">Date</div>
	<div style="border-bottom: 1px solid black; text-align: center;">Signature</div>	<div style="border-bottom: 1px solid black; text-align: center;">Date</div>
Department Vote for Approval: # Yes <u>10</u> # No <u> </u> # Not Voting <u> </u> <i>(Department members voting "no" may submit a separate report)</i>		
Department Chair:	<div style="border-bottom: 1px solid black; text-align: center;">Signature</div>	<div style="border-bottom: 1px solid black; text-align: center;">Date</div>
Academic Dean:	<div style="border-bottom: 1px solid black; text-align: center;">Signature</div>	<div style="border-bottom: 1px solid black; text-align: center;">Date</div>

Note: All sections of this form must be completed and submitted with all required attachments to the Chair of the Curriculum Committee according to published distribution schedule. Should you have any questions, call the Office of the Dean of Business, Science and Technology, 825-2147.

CURRICULUM REVIEW COMMITTEE MEETING FOLLOW UP		
Meeting Date: _____	Committee Vote: # Yes <input style="width: 30px;" type="checkbox"/>	# No <input style="width: 30px;" type="checkbox"/> # Abstentions <input style="width: 30px;" type="checkbox"/>
Curriculum Committee Chair:	<div style="border-bottom: 1px solid black; text-align: center;">Signature</div>	<div style="border-bottom: 1px solid black; text-align: center;">Date</div>
<input style="width: 30px; height: 20px;" type="checkbox"/> Forward to VPAA and President	<input style="width: 30px; height: 20px;" type="checkbox"/> Return to Department	
V.P. for Academic Affairs:	<div style="border-bottom: 1px solid black; text-align: center;">Signature</div>	<div style="border-bottom: 1px solid black; text-align: center;">Date</div>
President:	<div style="border-bottom: 1px solid black; text-align: center;">Signature</div>	<div style="border-bottom: 1px solid black; text-align: center;">Date</div>
<input style="width: 30px; height: 20px;" type="checkbox"/> To PEEC for Certificates of 18 or less	Date of Approval: _____	
<input style="width: 30px; height: 20px;" type="checkbox"/> To ASAC / BOG	Date of Approval: _____	
<input style="width: 30px; height: 20px;" type="checkbox"/> READY FOR IMPLEMENTATION		

File: Office of Vice President for Academic Affairs

Community College of Rhode Island

Program Proposal:

☒

New Program

☐

Revised Program

Date Submitted: 3 / 14 / 16

DEPARTMENT: Engineering and Technology

DEVELOPED BY: Jerry Bernardini, Edward Hanrahan and Raymond Ankrom

PROGRAM TITLE: Advanced Manufacturing Machining (ETMM)

TOTAL PROGRAM CREDITS: 19

Will program require the creation of any new courses?

Yes ☒

No ☐

If yes, list new courses:

ETCN 2000 (ETCN 20xx): Advanced Machining Skills

ETCN 1000 (ETCN 10xx): Industry and OSHA-10 Seminars

Will program replace another program of study?

Yes ☐

No ☒

If yes, list course and program of study:

Will program be an Associate Degree Program?

☐

If yes, specify degree type:

☒ No

Will program be a Certificate Program?

☒

If yes, specify total credit hours:

☐ No

RATIONALE FOR THE PROGRAM:

Modern manufacturing has been revolutionized by the use of computer numerical control (CNC) machining. In modern CNC systems, end-to-end component design is highly automated using computer-aided design (CAD) and computer-aided manufacturing (CAM) programs. For manufacturers to be competitive they need workers skilled in CNC operations and program design. Growing in use is 3D-design and 3D-printing to support rapid prototyping of designs. Many employment opportunities will be available to students that have all the skills and knowledge associated with CNC and rapid prototyping technology. The program has been designed to provide the student with extensive hands-on laboratory experience, utilizing a recently renovated laboratory. This experience will maximize the skills advocated by a manufacturing advisory board (See attachment). The certificated is the first of a two-certificate sequence for developing CNC related skills and knowledge.

CATALOG DESCRIPTION:**Description Overview**

This certificate will allow students to develop the knowledge and skills for advanced manufacturing machining. The program will give students extensive hands-on experience with manual, conversational and CNC machines. An emphasis will be place on safe and efficient setup and operation of industrial grad machining equipment. Overall, the program will prepare students to read blueprints, select the appropriate machining technology and produce a unit, meeting the design specifications. The certificate can be completed one year part-time and a summer session and semester full time. All credits can be applied to the Manufacturing Technology A.S. degree. 19 credits

Program Courses, Hours and Scheduling**Certificate –Manufacturing Machining**

**Industry and OSHA-10 Seminars	ETCN 2400	-
Certificate Totals		0
Certificate Contact Hour Totals (15-week semesters)		
MANUFACTURING AUTOMATION AND QUALITY - ETMQ		
Precision Measurement & Geometric Dim. Tol.	ETCN 1200	3
Introduction to Digital systems (PLCs)	ETEE 1800	3
**Automated Machining Technology	ETCN 2350	3
Introduction to Robotics and Control	ETME 1010	3

Learning Outcomes

1. Students will develop safe setup and operation of traditional and CNC machines
2. Students will to operate lathes, milling and grinders
3. Students will develop skills to operate CNC Lathes and mills
4. Students will be able read an produce industrial drawings and blueprints
5. Students will learn to efficiently use the Machine Handbook
6. Students will be able to read blueprints and machine the parts
7. Student will be able operate machinery in a conversational mode
8. Student will learn to prepare files for CNC machining with G-coding
9. Students will be able to use MasterCam to prepare files for CNC machining

MANUFACTURING MACHINING -ETMM					Degree Required
Intro to Manufacturing Process	ETME 1020	3	1	4	
Blue Print Reading and Machine Handbook	ETCN 1100	3	2	2	
**Advanced Machining Skills	ETCN 2000	3	1	4	
CNC Manufacturing I	ETCN 1300	3	1	4	3
Computer Aided Manufacturing (Master Cam)	ETCN 2100	3	1	4	
CNC Manufacturing II	ETCN 2200	3	1	4	
**Industry and OSHA-10 Seminars	ETCN 2400	1		4	1
Certificate Totals		19	7	26	
Certificate Contact Hour Totals (15-week semesters)			105	390	

CNC Advisory Board

Paul Cary; Quick Fitting

Thomas Hutchinson, Davol

Scot Jones, Groov-Pin

Tony Maneca, ArtVac

Dona Vincent, TEDCO

David Chenevert, Swissline

John Lombardi, RI Carbide

Karen Paoluchi, Yushin America +1

Antony Picone, Mahr Federal

Michelle Desaulniers, Taco

Peter McLaughlin, Rice Mfg.

Tom Kowalczyk, KMRM, LLC

Greg Silva, Parkinson Tech.

Andrew Cortez, Building Futures

William McCourt. RIMA

Larry Lefebvre, Chemart

Curriculum Map

		ETMM Courses						
ADVANCED MANUFACTURING TECHNOLOGY MANUFACTURING MACHINING CERTIFICATE (ETMM) "I" = Introduces the concept "R" = Reinforces or contributes additional information "E" = Emphasis (assumes level of mastery)		Intro to Manufacturing Process	Blue Print Reading and Machine Handbook	CNC Manufacturing I	Advanced Machining Skills	Computer Aided Manufacturing (MasterCam)	CNC Manufacturing II	OSHA-10 and Industry Seminars
Program Student Learning Outcomes Students will be able to:		ETME 1020	ETCN 1100	ETCN 1300	ETCN 2000	ETCN 2100	ETCN 2200	ETCN 2400
General Education, Core and Electives								
1	Analyze technical problems, propose solutions and document with written and oral reports	I	R	R	R	R	R	E
2	Read and apply blue print information for manufacturing	I	I	I	E	R	R	
3	Machine a variety materials using a conversational and CNC lathe, milling machine and grinder.	I	I	R	E	R	E	
4	G-code program and utilize automated software programs (MasterCam) for CNC machines			I	R	R	E	
5	Apply G-code programs to CNC lathes and mills(3 and 4 Axis)			I	R	R	E	I
6	Determine machining tooling, fixtures, speeds and feeds	R	I	R	R	R	E	I
7	Use the Machinery's Handbook as source of manufacturing information	I	I	R	E	R	E	I
8	Apply the basics of engineering materials and structures and to mechanical design	I	I	R	E	R	E	I

Did an Advisory Committee assist in the development of this program?	Yes	<input checked="checked" type="checkbox"/>	No	<input type="checkbox"/>
If yes, please attach a list of the names and affiliations of committee members.				

Are any arrangements with external organizations essential to offering this program?	Yes	<input type="checkbox"/>	No	<input checked="checked" type="checkbox"/>
If yes, please include a list of the names and affiliations of committee members:				

TRANSFERABILITY: Is this program intended for transfer to the following institutions:

☐ RIC
 ☐ URI
 ☒ Other, please specify CCRI ETST Associate degree

How does the program align with existing transfer agreements? For each course in the program, please list how the CCRI course aligns with sister institution. For example:

CCRI Course Title and Number -- RIC/URI Course Title and Number

See the attachment for application to ETMA degree

ADMINISTRATIVE PLANNING

Please comment on the effects and requirements of the proposal in relationship to the following:

PHYSICAL: On which campuses will the program be offered?

Knight x **Flanagan** **Liston** **Newport**

Days ____ **Evenings** x **TV** ____ **Internet** ____ **Satellites** ____ **Specify:** _____

Requested start

date: 8 / 31 / 2016

FINANCIAL: Will this program necessitate any budgetary modifications? Please provide a brief summary under each budget as is appropriate:

Operating

Equipment

The cost of all necessary equipment and supplies estimated at \$7000

Faculty

Edward Hanrahan
Ray Ankrom
Vern Mace
Jody Robinson

Staff

A 30% of a fulltime technician will be required for equipment maintenance

OTHER DEPARTMENTS/AREAS

What other departments will be affected? How? Have they been contacted?

This program will not affect other departments.