

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

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

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CCRI Apprenticeship Program for Advanced Manufacturing: *a Pilot Proposal*

Agenda

- ✓ Welcome and Introductions
- ✓ Outline of Program
- ✓ Discussion Points and feedback
- ✓ Tour (optional)
- ✓ End

Phase I



A condensed and intensive,
10 week (30 hours per week),
Hands on, experiential training,
on the *latest advanced manufacturing machines,*
(NOT virtual computer training – without any hands on machine training)

The apprenticeship program,
is designed to address the training needs,
of today's *Manual Machinist* or *Machine Operator*
- with opportunity to obtain **OSHA 10** certification

Courses

Introduction to Manufacturing Processes (ETME 1020)

Provides the student with practical experiential learning on the setup and operation of basic conventional machinery

- Lathes
- Milling machines
- Surface grinders
- Power band saws
- Drill presses
- Precision measurement instruments
- Blueprint reading
- Operation sheets (travelers)

Courses

Industry and OSHA 10 (ETCN 2400)

Provides students with an overview of the basic health and safety hazards present in the workplace and an overview of how the Occupational Safety and Health Administration (OSHA) operates.

- Hazardous Materials
- Material Handling
- Machine Guarding
- Lockout - Tagout
- Fall Protection
- Introduction to Industrial Hygiene
- Bloodborne Pathogens
- Ergonomics
- Safety and Health Programs

Courses

Precision Measurement and Geometric Dimensioning and Tolerance (ETCN 1200)

Provides the student with the ability to interpret Geometric Dimensioning and Tolerance (GD&T) language, as well as accurately and precisely measure manufactured parts and assemblies. Students learn to use:

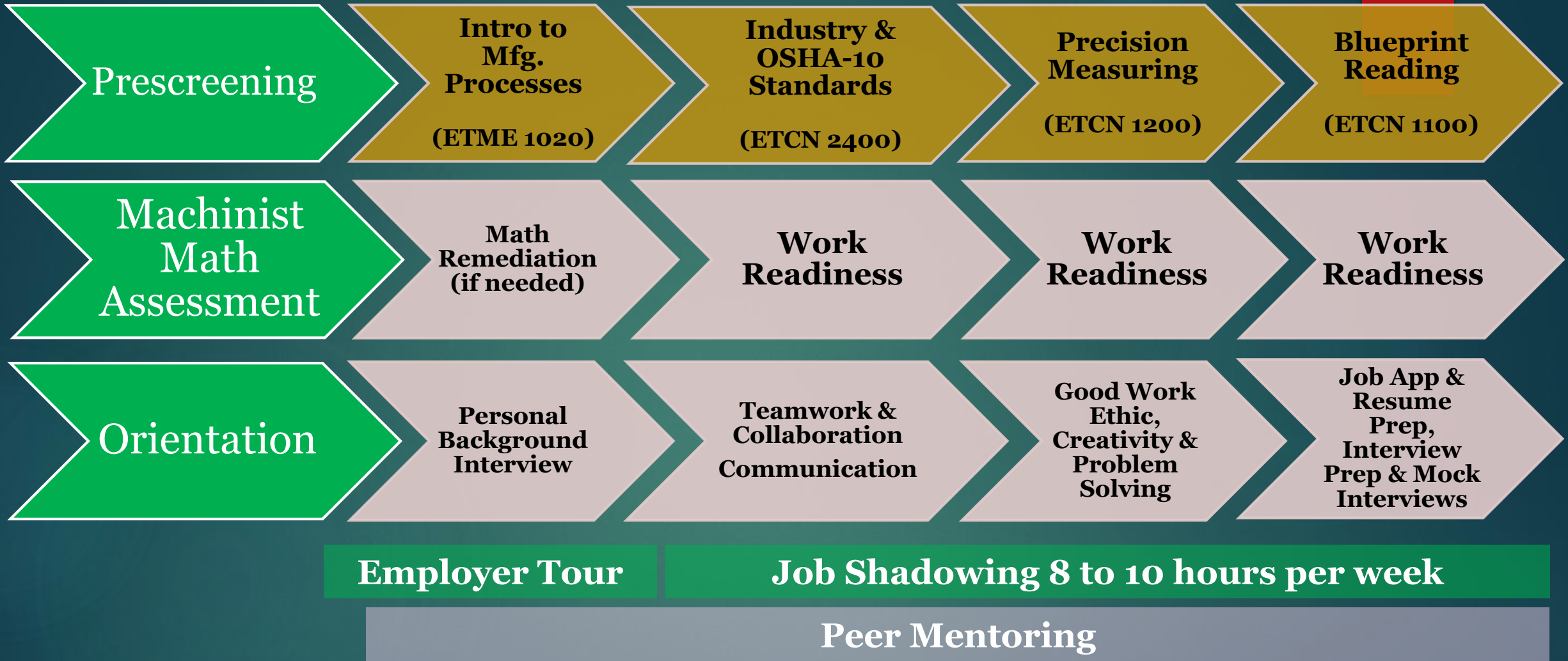
- Micrometers
- Digital calipers
- Dial indicators
- Sine bars

Courses

Blueprint Reading and the Machinery's Handbook (ETCN 1100)

Provides the student with practical experiential learning with how to read and interpret the language of industrial blueprints. Using the Machinery's Handbook they learn to:

- Find required information
- Speeds
- Feeds
- Cutting tool applications



Ten weeks – 30 hours/week in class

Target Audience:

- ✓ Unemployed and Underemployed
- ✓ Age 18+

Cohort Model:

- ✓ 25 students

Start Date:

- ✓ April 2017, Subsequently 3 runs per year

Phase II

Courses

Engineering Graphics (ENGR 1030)

Provides the student with insights into orthographic projection and the principles of descriptive geometry so that they can develop three-dimensional objects including:

- Auxiliary views
- Cross-sections
- Dimensioning
- Pictorial drawings
- Free-hand sketching

Also provides an introduction to SolidWorks design software

Courses

CNC Machining (ETCN 1300)

Provides the student with an introduction to:

- CNC Programming using flow chart process operation sheets
- Fundamental part programming using word address G and M codes
- CNC simulation software to create part programs for:
 - 3-axis milling machines
 - 2-axis turning operations

Prescreening

**Engineering
Graphics
(ETGR 1030)**

**CNC
Machining
(ETCN 2400)**

**Best
Students
from Phase I**

Work Readiness

Orientation

**Intro to
Robotics and
Automation
Systems**

**Meet the
Employers**

**Intro to
Program
Edits G&M
Codes**

Job Shadowing 8 to 10 hours per week

Peer Mentoring

Seven weeks – 30 hours/week in class

Target Audience:

- ✓ Select students from Phase I
- ✓ Additional employees from manufacturers wishing to upgrade skill of current employees

Cohort Model:

- ✓ 25 students

Start Date:

- ✓ Early Fall 2017 , Subsequently 3 runs per year

What we need from you -

- ***Agreement*** that what we have designed for a condensed, 10 week, intensive, hands on, experiential pilot is what the industry needs in Rhode Island
- Commit to ***partner with*** CCRI's apprenticeship pilot, inclusive of
 - Letter of support
 - ***Preference for hiring of CCRI graduates of the program***
 - Use of company logos in promotional brochures
 - Company representative for interview and video promotional materials
 - ***Allow students to shadow employees*** for a couple hours per day in the last two weeks of Phase I and all of Phase II

Apprenticeship Rhode Island

Year 1

- **Manual Machinist/Operator**

- On the Job Learning (OJL) – 1000 to 2000 hours

Year 1 - 2

- **CNC Machinist**

- OJL ~2000 hours (12 months)

Year 2 - 3

- **CNC Programmer**

- OJL ~2000 hours (12 months)

Year 3 - 4

- **Specialization (Tool-/Mold-/Die-maker, QA, Maintenance Technician, etc)**

- OJL ~2000 hours (12 months)

Year 4 – 5

- **Apprenticeship Ends**

- Associate Degree attained (Supervisor/Engineer)