Lansing Community College

Course Cover Sheet

M-CAM Training Area:
☐CNC/Machining ☐Multi-Skilled Mechatronics ☒Production Operation ☐Welding/Fabrications

Program(s): Certified Production Technician

Course: CPT Manufacturing Processes and Production

Course Description:
This 48-hour instructor-led, blended media training program provides participants with a comprehensive study of the materials, concepts, and processes used in modern manufacturing.

Upon successful completion, participants will be able to identify production processes for making products that will ensure safety, quality and profitability.

Participants who finish this class will be eligible to take the MSSC CPT Manufacturing Processes and Production assessment, which is part of the Certified Production Technician certification.

Delivery method is hybrid.

Date Created: July, 2015. Revised January, 2016

Employer/Industry Partner: various manufacturing companies in Mid-Michigan. Course guidelines and material provided by MSSC.

Faculty Developer(s)/Instructional Designers(s): Bill Roeser/Jim Caplis/Ann Lapo

College Contact: Jill Doederlein

Phone: 517.483.9665

Email: doederj@lcc.edu

Additional Information/Comments: Developed to answer the needs of manufacturing companies served by Lansing Community College. Upon piloting the MSSC CPT courses, it was discovered that there was a lack of hands-on activities to solidify learning. LCC faculty worked to enhance content with relevant, industry-related activities. ToolingU (online) was utilized to supplement student learning in the classroom.

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DESCRIPTION:
This 48-hour instructor-led, blended media training program provides participants with a comprehensive study of the materials, concepts, and processes used in modern manufacturing.

Upon successful completion, participants will be able to identify production processes for making products that will ensure safety, quality and profitability.

Participants who finish this class will be eligible to take the MSSC CPT Manufacturing Processes and Production assessment, which is part of the Certified Production Technician certification.

TOTAL TIME REQUIREMENT for the course is 48 hours.

PREREQUISITES: Reading Level 4. Basic computer skills.

OBJECTIVES:
After completing this course, the student should be able to:
- Identify customer needs
- Determine resources available for the production process.
- Set up equipment for the production process.
- Set team production goals.
- Make job assignments.
- Coordinate work flow with team members and other work groups.
- Communicate production and material requirements and product specifications.
- Perform and monitor the process to make the product.
- Document product and process compliance with customer requirements.
- Prepare final product for shipping or distribution.
- Take the MSSC CPT Manufacturing Processes & Production assessment.

MATERIALS:
- MSSC online content
- Simulated Production Environment equipment and materials.
- MSSC CPT Manufacturing Processes & Production registrations (for first time participants) and assessments.
- Instructor-developed handouts.

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GRADING POLICY:

- Satisfactory completion of training (at least 75%) recommended.

College Grading Standards	Percent
4.0 Excellent	91-100%
3.5	86-90%
3.0 Good	81-85%
2.5	76-80%
2.0 Satisfactory	71-75%
1.5	66-70%
1.0	60-65%
0.0	0-59%

ACCEPTABLE USE POLICY:
Computer Resources

Use of College-owned computer resources is a privilege extended by the College to students, employees, and other authorized users as a tool to promote the mission of the College. All users agree to be bound by the terms and conditions of the LCC Acceptable Use Policy at the time they complete an account application form. Copies of the LCC Acceptable Use Policy are available at the Library Circulation Desk and may also be accessed on the World Wide Web. The URL is http://www.lcc.edu/policy/policies_1.aspx#ACCEPTABLE_USE_POLICY

Transfer Potential

For transferability information, please consult the Transfer Equivalency Information located at the LCC website at http://www.lcc.edu/transfer. For additional transferability information, contact the LCC Academic Advising Center, (517) 483-1904.

The MACRAO Transfer Agreement simplifies the transfer of students from one Michigan institution to another. The most current MACRAO Transfer Agreement information can be found at http://www.lcc.edu/transfer/macrao_agreement.aspx.

Student Code of Conduct and General Rules and Guidelines

LCC supports a positive educational environment that will benefit student success. In order to ensure this vision, the College has established the LCC Student Code of Conduct and the Student General Rules and Guidelines to ensure the protection of student rights and the health and safety of the College community, as well as to support the efficient operation of College programs. In addition, the College has established guidelines for the redress of grievances by individuals accused in such proceedings. A copy of the most current Code can be found on the College's website at http://www.lcc.edu/catalog/policies_procedures/studentrulesguidelines.aspx#code.

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Description

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Upon successful completion, learners will be able to identify production processes for making products that will ensure safety, quality and profitability.

Structure

48 contact hours, 4 hour sessions, twice per week for 6 weeks. 75% Attendance to qualify for the LCC-BCI Certificate of Completion, Prerequisites: Accuplacer Level 3 (or above) score in reading, math, and writing OR Work keys Level 4 scores (or above) in math, reading, and locating information must be achieved before starting this course.

Workshop Format

The aim is to achieve a positive, interactive and collaborative learning outcome through group and individual contributions provided in an adult learning environment.

Internal competition tendencies are redirected into shared expertise based upon the willingness to learn from each other.

Synchronous and asynchronous activities, coaching, mentoring and open, direct discussions of the course content are reinforced though assessment before, during and after the workshop.

Course Flow

Week 1 Overview MSSC, Production Basics

Week 2 Production Materials, Production Processes

Week 3 Tools & Equipment, Planning & Work Flow

Week 4 Lean Manufacturing

Week 5 Control & Documentation, Customer Contact

Week 6 Review, Assessment

Learner Resources

BCI Production Course Binder & Pen

MSSC Work & Worker Standards

MSSC CPT Candidate Handbook

MSSC High-Performance Manufacturing Text

MSSC High-Performance Applications Manual

MSSC CPT Production Registration and Assessment*

LCC TUID (Tech User Identification)

SME - Tooling U Subscription

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1st Session Flow

1st hour	Welcome, Introductions, Play Map 1, Orientation/Enrollment, Course Survey	
2nd hour	MSSC CPT Work & Worker Standards	
	HPM Text & Applications Manual	
3rd hour	ToolingU- SME LMS Start Up	
		Lean Manufacturing Overview 130
4th hour	Recap, Wrap Up, Next Steps	

2nd Session Flow

1st hour	Welcome Back, Play Map 2, Text & Manual Ch.8 Basics,	
	Section 8.1 Creating Products, pp. 183-186	
2nd hour	Product Activity	
3rd hour	Section 8.2 Types of Production, pp. 187-193	
	Tooling U	Product Design and Development 134
4th hour	Recap, Wrap Up, Next Steps	

3rd Session Flow

1st hour	Welcome Back, Play Map 3	
2nd hour	HPM Text & Applications Manual Ch. 9 Production Materials	
3rd hour	ToolingU	Intro to Materials 100
4th hour	Recap, Wrap Up, Next Steps	

4th Session Flow

1st hour	Welcome Back, Play Map 4	
2nd hour	HPM Text & Applications Manual Ch. 10 Production Processes	
3rd hour	ToolingU	Mfg. Process Applications: Part I 124
		Mfg. Process Applications: Part II 125
4th hour	Recap, Wrap Up, Next Steps	

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5th Session Flow

1st hour	Welcome Back, Week 2 Review	
2nd hour	HPM Text & Applications Manual Ch. 11 Tools & Equipment	
3rd hour	ToolingU	Intro to Mechanical Systems 100
		Safety for Mechanical Work 105
		Total Productive Main't Overview 150
4th hour	Recap, Wrap Up, Next Steps	

6th Session Flow

1st hour	Welcome Back, Session 5 Review	
2nd hour	HPM Text & Applications Manual Ch. 12 Production Planning & Work Flow	
3rd hour	ToolingU	Prod. System Design/Development 136
		Process Flow Charting 240
4th hour	Recap, Wrap Up, Next Steps	

7th Session Flow

1st hour	Welcome Back, Week 3 Review	
2nd hour	HPM Text & Applications Manual Ch. 13 Production Components	
3rd hour	ToolingU	Metrics for Lean 230
4th hour	Recap, Wrap Up, Next Steps	

8th Session Flow

1st hour	Welcome Back, Session 7 Review	
2nd hour	HPM Text & Applications Manual Ch. 14 Control & Documentation	
3rd hour	ToolingU	Quality Overview 100
4th hour	Recap, Wrap Up, Next Steps	

9th Session Flow

1st hour	Welcome Back, Week 4 Review	
2nd hour	HPM Text & Applications Manual Ch. 15 Packing & Distributing	
3rd hour	ToolingU	Intro to Supply Chain Management 140
4th hour	Recap, Wrap Up, Next Steps	

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10th Session Flow

1st hour	Welcome Back, Session 9 Review
2nd hour	HPM Text & Applications Manual Ch.7 Meeting Customer Needs
3rd hour	ToolingU Quality & Customer Service 175
4th hour	Recap, Wrap Up, Next Steps

11th Session Flow

1st hour	Welcome Back, Chapters 8, 9, 10 Review
2nd hour	Chapters 11, 12, 13 Review
3rd hour	Chapters 14, 15, 7 Review
4th hour	Recap, Wrap Up, Next Steps

12th Session Flow

1st hour	Welcome Back, Course Review
2nd hour	Recap, Wrap Up, Next Steps
3rd hour	On line Assessment
4th hour	On line Assessment

Instructor Resources

LCC-BCI Production Course Binder

MPP PPT, Handouts PDFs

By the Numbers

Text, 175 pages, 9 Chapters, 23 Sections, 90 Text Prep Questions

Manual, 196 pages, 9 Chapters, 74 Activities

Content Sources

BCI Custom Design & Development, MSSC, ToolingU-SME, Play Maps FPI

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Subject Matter Expert (SME) Course Review Summary
College: Lansing Community College
M-CAM Training Area: ☐CNC/Machining ☐Multi-Skilled/Mechatronics ☒Production Operation ☐Welding/Fabrication
Degree Program Name:
Title of Course: MSSC CPT Leader Guide
Subject Matter Expert (SME) Reviewer Information **Name: Robert C. Hess** **Title: Senior Instructional Designer/Trainer** **Phone: 566-322-1033** **Email: bob.hess@mhtechnologies.net** **Organization/Affiliation: MH Technologies**
Attach Resume or provide credentials (showing years of experience and work experience that is relevant to course content):
Synopsis of Findings: **1. Clear and concise.**

Reviewers Signature Robert C. Hess Date: 3/10/17

Michigan Coalition for Advanced Manufacturing
Subject Matter Expert Course Review

1. Course Overview and Objectives	Exceptional	Satisfactory	Ineffective
The goals and purpose of the course is clearly stated.		X	
Prerequisites and/or any required competencies are clearly stated.		X	
Learning objectives are specific and well-defined.		X	
Learning objectives describe outcomes that are measurable.		X	
Outcomes align to occupational focus (industry skills and standards).		X	
Comments or recommendations:			

2. Material and Resources	Exceptional	Satisfactory	Ineffective
The instructional materials contribute to the achievement of the course learning objectives.		X	
The materials and resources meet/reflect current industry practices and standards.		X	
The instructional materials provide options for a variety of learning styles.		X	
Resources and materials are cited appropriately. If applicable, license information is provided.		X	
Comments or recommendations:			

3. Learning Activities	Exceptional	Satisfactory	Ineffective
Provide opportunities for interaction and active learning.		X	
Help understand fundamental concepts, and build skills useful outside of the learning object.		X	
Activities are linked to current industry practices and standards.		X	

Michigan Coalition for Advanced Manufacturing
Subject Matter Expert Course Review

Comments or recommendations:			
4. Assessment Tools/Criteria for Evaluation	**Exceptional**	**Satisfactory**	**Ineffective**
The course evaluation criteria/course grading policy is stated clearly on syllabus.		X	
Measure stated learning objectives and link to industry standards.		X	
Align with course activities and resources.		X	
Include specific criteria for evaluation of student work and participation.		X	
Comments and recommendations:			
5. Equipment/Technology	**Exceptional**	**Satisfactory**	**Ineffective**
Meets industry standards and needs.		X	
Supports the course learning objectives.		X	
Provides students with easy access to the technologies required in the course/module.		X	
Comments and recommendations:			

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Robert C. Hess

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Qualifications

Dedicated, articulate, and enthusiastic with strong analytical and organizational abilities. Effective communication and interpersonal skills. Ability to work independently or as an integral part of a team to accomplish goals. Experience prioritizing and completing numerous concurrent responsibilities while meeting time and organizational goals. Sound professional attitude, strong work ethic and pride in personal performance.

Experience

2015 – Present **M H Technologies LLC** **Warren, MI**
Senior Instructional Designer/Trainer

- Perform Needs Analysis and quote training programs
- Develop on-line training programs, system manuals, student workbooks, and job aids
- Deliver on-site training programs

2002 – 2015 **R.C. Technologies** **Shelby Twp. MI**
Business Owner – R.C. Technologies

- Research and quote training programs
- Development of training programs for Ford Motors, DaimlerChrysler, General Motors, Kuka Robotics, Fame Conveyor, Lamb Technicon, Delphi, Magna, and SPX
- Design training programs, system manuals, student workbooks, PowerPoint presentations, and job aids
- Deliver on-site training programs
- Professional Industrial photography

1995 – 2002 **DCT Inc.** **Sterling Heights, MI**
Training Designer

- Research and quote training programs
- Design training programs, system manuals, student workbooks, and job aids
- Deliver on-site training programs

1990 – 1995 **Bond Robotics** **Sterling Heights, MI**
Training Manager / Field Service Engineer

- Managed Training Department
- Research and quote training programs
- Design operation and maintenance manuals plus training guides
- Deliver all training programs
- Perform on-site electrical and mechanical customer support for installation, start-up, and debugging of pressroom automation

1986 – 1990 **Robotic Vision Systems, Inc.** **Sterling Heights**
Field Service Engineer / Trainer

- Research, installation, programming and training of 3D vision guided robotic welding and sealant systems for military, aerospace, and automotive industry

Education **1977 – 1981** **Ferris State University** **Big Rapids, MI**

- BSEE