

MACH107 : * Machine Practice I

General Information

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Course Code (CB01) :	MACH107
Course Title (CB02) :	* Machine Practice I
Department:	MACH
Proposal Start:	Spring 2025
TOP Code (CB03) :	(0956.30) Machining and Machine Tools
CIP Code:	(48.0501) Machine Tool Technology/Machinist.
SAM Code (CB09) :	Possibly Occupational
Distance Education Approved:	No
Will this course be taught asynchronously?:	No
Course Control Number (CB00) :	CCC000246546
Curriculum Committee Approval Date:	05/22/2024
Board of Trustees Approval Date:	07/16/2024
Last Cyclical Review Date:	05/22/2024
Course Description and Course Note:	MACH 107 provides practice on machine shop equipment. Students work on individual projects which they retain for their use. Students learn to visualize and perform various functions necessary in the machine trade.
Justification:	Mandatory Revision
Academic Career:	<ul style="list-style-type: none">Credit
Mode of Delivery:	
Author:	
Course Family:	

Academic Senate Discipline

Primary Discipline:	<ul style="list-style-type: none">Machine Tool Technology (Tool and die making)
Alternate Discipline:	No value
Alternate Discipline:	No value

Course Development

Basic Skill Status (CB08) Course is not a basic skills course.	Course Special Class Status (CB13) Course is not a special class.	Grading Basis <ul style="list-style-type: none">Grade with Pass / No-Pass Option
<input type="checkbox"/> Allow Students to Gain Credit by Exam/Challenge	Pre-Collegiate Level (CB21) Not applicable.	Course Support Course Status (CB26) Course is not a support course

General Education and C-ID

General Education Status (CB25)

Not Applicable

Transferability

Not transferable

Transferability Status

Not transferable

Units and Hours

Summary

Minimum Credit Units (CB07)	2
Maximum Credit Units (CB06)	2
Total Course In-Class (Contact) Hours	72
Total Course Out-of-Class Hours	36
Total Student Learning Hours	108

Credit / Non-Credit Options

Course Type (CB04)

Credit - Not Degree Applicable

Noncredit Course Category (CB22)

Credit Course.

Noncredit Special Characteristics

No Value

Course Classification Code (CB11)

Credit Course.

Variable Credit Course

Funding Agency Category (CB23)

Not Applicable.

Cooperative Work Experience
 Education Status (CB10)

Weekly Student Hours

	In Class	Out of Class
Lecture Hours	1	2
Laboratory Hours	3	0
Studio Hours	0	0

Course Student Hours

Course Duration (Weeks)	18
Hours per unit divisor	54
Course In-Class (Contact) Hours	
Lecture	18
Laboratory	54
Studio	0
Total	72
Course Out-of-Class Hours	
Lecture	36
Laboratory	0
Studio	0
Total	36

Time Commitment Notes for Students

No value

Units and Hours - Weekly Specialty Hours

Activity Name	Type	In Class	Out of Class
No Value	No Value	No Value	No Value

Pre-requisites, Co-requisites, Anti-requisites and Advisories

No Value

Entry Standards

Entry Standards

Course Limitations

Cross Listed or Equivalent Course

Course Objectives

Perform a series of machining exercises on the lathe, mill, and surface grinding machines.

Complete an individual project designed by themselves and approved by the instructor.

Accurately interpret shop drawings.

Articulate and apply safety equipment and practices used by machinists.

SLOs

Read and draw blueprints and project specifications.

Expected Outcome Performance: 70.0

<i>ILOs</i> Core ILOs	Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.
	Demonstrate depth of knowledge in a course, discipline, or vocation by applying practical knowledge, skills, abilities, theories, or methodologies to solve unique problems.
<i>MACH</i> Machinist - A.S. Degree Major	Demonstrate the skills required in the field of machine and manufacturing technology, such as use of manual machining equipment.
<i>MACH</i> Machinist - Certificate	Demonstrate the skills required in the field of machine and manufacturing technology, such as use of manual machining equipment.

Operate all machines with accuracy and know their safety precautions.

Expected Outcome Performance: 70.0

<i>ILOs</i> Core ILOs	Demonstrate depth of knowledge in a course, discipline, or vocation by applying practical knowledge, skills, abilities, theories, or methodologies to solve unique problems.
<i>MACH</i> Machinist - Certificate	Demonstrate the skills required in the field of machine and manufacturing technology, such as use of manual machining equipment.
<i>MACH</i> Machinist - A.S. Degree Major	Demonstrate the skills required in the field of machine and manufacturing technology, such as use of manual machining equipment.

Design a project and produce it from start to finish.

Expected Outcome Performance: 70.0

<i>ILOs</i> Core ILOs	Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.
	Demonstrate depth of knowledge in a course, discipline, or vocation by applying practical knowledge, skills, abilities, theories, or methodologies to solve unique problems.
<i>MACH</i> Machinist - A.S. Degree Major	Demonstrate the skills required in the field of machine and manufacturing technology, such as use of manual machining equipment.
<i>MACH</i> Machinist - Certificate	Demonstrate the skills required in the field of machine and manufacturing technology, such as use of manual machining equipment.

Measure with accuracy and cut precisely.

Expected Outcome Performance: 70.0

<i>ILOs</i> Core ILOs	Demonstrate depth of knowledge in a course, discipline, or vocation by applying practical knowledge, skills, abilities, theories, or methodologies to solve unique problems.
	Use quantitative and/or analytical mathematical skills to solve problems and to interpret, evaluate, and process information and data to draw logical conclusions and support claims.
<i>MACH</i> Machinist - Certificate	Demonstrate the skills required in the field of machine and manufacturing technology, such as technical mathematics.
	Demonstrate the skills required in the field of machine and manufacturing technology, such as use of manual machining equipment.
<i>MACH</i> Machinist - A.S. Degree Major	Demonstrate the skills required in the field of machine and manufacturing technology, such as technical mathematics.
	Demonstrate the skills required in the field of machine and manufacturing technology, such as use of manual machining equipment.

Additional SLO Information

Does this proposal include revisions that might improve student attainment of course learning outcomes?

No

Is this proposal submitted in response to learning outcomes assessment data?

No

If yes was selected in either of the above questions for learning outcomes, explain and attach evidence of discussions about learning outcomes.

No Value

SLO Evidence

No Value

Course Content

Lecture Content

Drawings and Specifications (6 hours)

- Blueprint reading
- Shop terms and abbreviations
- Dimensions and specifications
- Allowances and tolerances
- Assembly drawings
- Layout from blueprints and sketches
- Essentials of a good sketch
- When and how to make sketches
- What the layout should illustrate

Benchwork (3 hours)

- Care and use of bench hand tools, semi-precision and precision
- Care and operation of hand tools and bits
- Care and use of deburring tools
- Operations of bench grinders and polishers
- Operation of bench press
- Safety instruction

Drill Press (1 hour)

- Related attachments and use
- Vices Tapping attachments
- Cutting attachments
- Types of drill chucks
- Drill presses of various types

- Principles of special jigs and fixtures
- Operation of special measuring tools
- Safety

Engine Lathe (4 hours)

- Principles of engine lathe
- Construction Operation Maintenance
- Types Identification
- Care and use of face plates and dog plates
- Types and use of centers
- Care, operation, and use of lathe attachments
- Following rest
- Steady rest
- Collets
- Grinder
- Three and four jaw chucks
- Taper attachments
- Related math
- Safety

Milling Machine (4 hours)

- Principles of milling
- Horizontal
- Vertical
- The use of the machine, its attachments and equipment
- Dividing head
- Vertical attachment
- Arbor Shell cutting attachment
- Principles of cutting tools
- Types of arbor cutters
- Shell cutters
- End mills and fly cutters
- Related math as required
- Use of special tools and gauges
- Safety

Total hours: 18

Laboratory/Studio Content

Benchwork (2 hours)

- Care and use of bench hand tools, semi-precision and precision
- Care and operation of hand tools and bits
- Care and use of deburring tools
- Operations of bench grinders and polishers
- Operation of bench press
- Safety instruction

Drill Press (6 hours)

- Related attachments and use
- Vices Tapping attachments
- Cutting attachments
- Types of drill chucks
- Drill presses of various types
- Principles of special jigs and fixtures
- Operation of special measuring tools
- Safety

Engine Lathe (14 hours)

- Principles of engine lathe
- Construction Operation Maintenance
- Types Identification
- Care and use of face plates and dog plates
- Types and use of centers
- Care, operation, and use of lathe attachments
- Following rest
- Steady rest
- Collets
- Grinder
- Three and four jaw chucks
- Taper attachments
- Related math

- Safety

Milling Machine (14 hours)

- Principles of milling
- Horizontal
- Vertical
- The use of the machine, its attachments and equipment
- Dividing head
- Vertical attachment
- Arbor Shell cutting attachment
- Principles of cutting tools
- Types of arbor cutters
- Shell cutters
- End mills and fly cutters
- Related math as required
- Use of special tools and gauges
- Safety

Laboratory Projects (18 hours)

- Milling machine projects
- Engine lathe projects

Total hours: 54

Additional Information

Is this course proposed for GCC Major or General Education Graduation requirement? If yes, indicate which requirement in the two areas provided below.

No

GCC Major Requirements

No Value

GCC General Education Graduation Requirements

No Value

Repeatability

Not Repeatable

Justification (if repeatable was chosen above)

No Value

Resources

Did you contact your departmental library liaison?

No

If yes, who is your departmental library liaison?

No Value

Did you contact the DEIA liaison?

No

Were there any DEIA changes made to this outline?

No Value

If yes, in what areas were these changes made:

No Value

Will any additional resources be needed for this course? (Click all that apply)

No Value

If additional resources are needed, add a brief description and cost in the box provided.

No Value