WASHTENAW COMMUNITY COLLEGE
COURSE-SYLLABUS APPROVAL FORM (CSAF)

For help screens, select a field and press F1

SECTION I. COURSE SUBMISSION INFORMATION

1. **Course:** (Enter proposed discipline, number & title here. If changing the number or title of an existing course, give old number or title in box 4 below.)
Discipline/No: MTT-103 **Title:** Introduction to Materials
Banner allows only 29 characters and spaces, for the title. Longer titles will have to be abbreviated.

Division Code: HAT Department Code: INDT Effective Term: F2002
☐ Do not publish on the Time Schedule
☐ Do not publish in College Catalog

2. **Type of Approval:** (applies to both new courses and changes)
☒ Full Approval
☐ Conditional Approval
☐ This proposal previously received conditional approval for the Term: _____

3. **Reason for Submission:** This Course is being submitted for: (check all that apply)
☐ New Course Approval (Skip 4 and go directly to 5.)
☒ Five-year Syllabus Review ☐ No changes to course (Submit complete syllabus)
☐ Major Change(s) (Submit complete syllabus)
☒ Minor Change(s)* (For fully approved courses, you can submit this page and revised sections.)
☐ Reactivation of Inactive Course
☐ Inactivation (Submit this page only.)
*When requesting a change to a course that has only conditional approval, you must submit a complete syllabus.

4. **Change Information:** (Check all that apply. Make proposed changes in Section III, Course Syllabus.)

Minor Changes
☐ Course Discipline/Number (was _____)
☐ Course Title (was _____)
☐ Course Description
☒ Class Capacity (was: 24)
☐ Pre or Corequisites
☒ Course Objectives (minor changes)
☐ Distribution of Contact Hours (old contact hours were: lect: _____ lab _____ clin _____ other _____)
☐ Other _____

Major Changes (Major changes will be reviewed by Curriculum Committee.)
☐ Credit hours (credits were: _____)
☐ Change in Grading Method
☐ Total Contact Hours (total contact hours were: _____)
☐ Approval for offering an Honors Section (Attach Honors Approval Form.)
☐ Approval for offering Distance Learning Sections (Attach Distance Learning Approval Form)
☐ Other _____

5. **Rationale**: (for new course or changes)
A new book has been selected for instruction. New materials covered in plastics and composites. An internet research paper and oral presentation has been added.

SECTION II. COURSE REVIEW INFORMATION AND SIGNATURES

1. **Department Review** (To be completed by department chair)
Will any new resources be required? ☐ yes (Attach Resource Form) ☒ No new resources are anticipated.
Which departments, that may be affected by this course, have been consulted? Only affects our programs.
(Attach any relevant documentation)
Does the department support approval of this course? ☒ yes ☐ no (if no, initial and return to preparer with rationale.)

Print: Tom Penird (Faculty/Preparer) Signature _____ Date: 3/29/02

Print: Gary Schultz (Department Chair) Signature _____ Date: 3/29/02

2. **Division Review** (To be completed by division dean; if recommendation is no, initial and return to department with rationale attached.)
Is this a curricular priority for your division? ☐ yes ☐ no (Comment _____)
What is the estimated enrollment? _____
Recommendation ☒ Yes ☐ No _____ (Dean's Signature) Date: 3/29/02

3. **Curriculum Committee Review** (Attach additional comments if necessary and forward to Executive Vice President.)
Recommendation ☐ Yes ☐ No _____ (Curriculum Committee Chair's Signature) Date _____

4. **Vice President for Instruction and Student Services Approval** (Attach additional comments if necessary.)
Approval ☒ Yes ☐ No _____ (Executive Vice President's Signature) Date 4/3

ACS Code _____ Entered in Banner 4/8/02 Entered in Access 4/8/02 Log File 4/8/02
Approved for General Education Area/Group _____ New Syllabus Date 200201

Processed . . .
APR 15 2002

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SECTION III. COURSE SYLLABUS **For help screens press F1.**

A. COURSE DETAILS (Start with #3. Course and title will automatically appear in 1 and 2 below upon saving or previewing)

1. Course Discipline & No.: MTT-103 **2. Title:** Introduction to Materials

3. Description: (Please be brief. Explain acronyms if used.)
This course includes an introduction to the basic terms, manufacturing processes, and characteristics of materials. Testing of mechanical properties, and materials classification systems are included and demonstrated. Principles of heat treating, casting, hot working, and cold working as well as powder metallurgy, plastics, composites, and nonmetallic materials are studied.

4. Credit Hours: 3
If Variable credit, Give Range: _____ to _____ credits
If repeatable for credit, how many times _____

5. Contact Hours per Semester:

Lecture:	45.0
Lab:	0.0
Clinical:	0.0
Other: _____	0.0
Total Contact Hrs:	45.0

6. Class Capacity: 18
(If nonstandard, attach Class Capacity Exception form.)

7. Course Options:
☐ Distance learning
☐ Honors (Complete Honors Addendum.)
☐ P/NP Grading

8. Prerequisites

Course	Min. Grade	Concurrent* Enrollment	Level** I	Level** II	and	or	Test Name	Minimum Score	Level I	Level II
		☐yes	☐	☐	☐	☐			☐	☐
		☐yes	☐	☐	☐	☐			☐	☐
		☐yes	☐	☐	☐	☐			☐	☐
		☐yes	☐	☐	☐	☐			☐	☐
		☐yes	☐	☐	☐	☐			☐	☐
		☐yes	☐	☐	☐	☐			☐	☐
		☐yes	☐	☐	☐	☐			☐	☐

* Can take prerequisite before or concurrently with this course.
**Level I is enforced in Banner; Level II is enforced 1st day of class

9. Corequisite course(s): (limit of 2)
_____
_____

10. Course Purpose:
☒ Program Requirement
☐ General Education
☐ Program Support
☐ Basic Skills/Developmental
☐ Transfer
☐ Industry/Professional Dev
☐ Enrichment

If a program requirement, specify the program(s)
CVMTTA, APCADD
and local apprentice programs

Please send syllabus for Transfer evaluation to:
☐ EMU
☐ UM
☐ _____
☐ _____

Accepted for transfer: (attach documentation)
☐ EMU
☐ UM
☐ _____
☐ _____

B. MAJOR INSTRUCTIONAL UNITS A major instructional unit is a grouping of topics that naturally relate to one another. List the major instructional units for this course. Add additional numbers as needed. (You can cut and paste from other documents.)

1. UNIT # 1 Introduction to Materials
2. UNIT # 2 Extracting Metal from Ores
3. UNIT # 3 Physical and Mechanical Properties of Materials
4. UNIT # 4 Manufacturing Processes Used in Manufacturing Metal Parts
5. UNIT # 5 Plastics and Elastomers
6. UNIT # 6 Composite Materials
7. UNIT # 7 Failure Analysis

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D. INSTRUCTIONAL OBJECTIVES

DIRECTIONS: Units should match those listed in Section B above. Use student outcome-based language. (Example: The student will be able to describe orally and in writing, the conventions of Shakespeare's histories.) If desired you may add a section of "overall course objectives" which are not associated with a specific unit.

Unit Objectives

Unit #1 Introduction to Materials

1 History of Material Science
2 Materials Classifications
3 Understanding simple atomic model and bonding arrangement

Unit # 2 Extracting Metal from Ores

1 Understand the various steps, basic materials, and principles involved in making pig iron
2 Identify various steel-making processes.
3 Explain several processes used in producing noferrous metal

Unit # 3 Physical and Mechanical Properties of Materials

1 Correctly define and describe the mechanical properties of materials
2 Understand the terms applied to mechanical testing.
3 Describe the various testing machines and their uses.
4 Prepare tensile test specimens, perform testing on specimens, evaluate data from tests
5 Correctly define and describe the physical properties of materials

Unit # 4 Manufacturing Processes Used in Manufactureing Metal Parts

1 Casting and Molding Processes
2 Die Casting
3 Forging, Extrusion, Stamping, Drawing and Forming of Metal Parts
4 Powdered metals
5 Platings, corrosion coatings, anodizing and joining methods.

Unit # 5 Plastics and Elastomers

1 Recyclables and SPI Identification System
2 Descibe the cemical structures of several plastic materials and their particular behavior characteristics
3 Thermoplastics
4 Thermoset Plastics
5 Identify kinds of plastics and rubbers and some of their uses
6 Processes used to manufacture plastic processes

Unit # 6 Ceramics , Composite Materials, Wood and Paper Products

1 Describe the characteristics of metal matrix composites

2 Explain the characteristic of and some of the uses for, advanced ceramic materials

3 Describe the structure of glass

4 Describe the structure of wood and how it is processed to make lumber and plywood

5 Explain the processes used to make paper.

Unit # 7 Failure Analysis

1 Explain the causes of several industrial problems that lead to failures and list corrective measures for them

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E. INSTRUCTIONAL METHODS AND EVALUATION

1. Instructional Methods: (Check the appropriate boxes and describe as needed.)

- ☒ Lecture/Discussion
- ☐ Clinical Instruction
- ☒ Laboratory Assignments
- ☐ Internet Assignments
- ☐ Computer Simulations
- ☐ On-Site Work Experience
- ☒ Other Laboratory Demonstrations
- ☐ Field Trips
- ☐ Team Assignments
- ☐ Demonstrations
- ☐ Telecourse
- ☐ Interactive TV
- ☐ Self-Paced Learning

2. Evaluation Criteria:

- ☐ Attendance
- ☒ Class Discussion
- ☐ Papers
- ☐ Portfolio
- ☐ Projects
- ☒ Reports
- ☐ Clinical/Work
- ☒ Other internet project with oral report
- ☒ Quizzes
- ☐ Tests
- ☐ Midterm
- ☒ Final Exam
- ☐ Home Work
- ☒ Presentations
- ☐ Individual Performance
- ☐ Group Performance

3. Attendance Requirements: (For Certification or nonevaluative purposes.)

F. EQUIPMENT, FACILITIES, TEXTS, MATERIALS, AND SUPPLIES

1. Special Equipment/Facilities : (Check the appropriate boxes and describe as needed.)

- ☒ Lab equipment Room TI131 for metalugical
- ☒ LRC Reserves Data projector by semester
- ☐ Computers
- ☐ CD ROM's
- ☒ VCR TV/VCR combo by semester
- ☐ TV Monitor
- ☐ Testing Center
- ☐ Student Competitions
- ☐ Off-Campus Sites
- ☐ Student Tutors
- ☐ Distance Learning Classroom
- ☐ Other

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2. Texts: (Please indicate if no text is required.)

Title: Practical Metallurgy and Materials of Industry fifth edition
Author: John E. Neely , Thomas J. Bertone Copyright Yr: 2000
Publisher: Prentice Hall Est. Cost: $90

Title:
Author: Copyright Yr:
Publisher: Est. Cost:

Title:
Author: Copyright Yr:
Publisher: Est. Cost:

Title:
Author: Copyright Yr:
Publisher: Est. Cost:

Additional Texts:

3. Supplies and/or Uniforms Student will have to Own or Acquire for Course:
(e.g. calculators, uniforms, tools, and software, etc., excluding textbooks.)

Descriptions	Cost Estimates

4. Reference Materials Students Will Use:
(e.g. journals, books, manuals, maps, LRC reserves, etc.)

Title	Source/Location

5. Computer Software That Will Be Used:

Title/Name	Source/Location

6. Audio/Visual MaterialsThat Will Be Used: (e.g. films, video tapes, slides, audio tapes, CDs, etc.)

Title/Name	Source/Location

Office of the Vice President
Instruction and Student Services

APPROVAL FORM
MAXIMUM CLASS CAPACITY EXCEPTION

Please indicate the type of maximum class capacity exception.

1. ☐ Situational Exception 2. ☐ Phased Exception 3. ☒ Long-Term Exception

Part A: COURSE INFORMATION

Disc/Num: MTT-103 Course Title: Introduction to Materials

Site and/or location: Main Campus

Part B: RECOMMENDED MAXIMUM CLASS CAPACITY

1. Lecture maximum class capacity 18
2. Laboratory maximum class capacity 18
3. Clinical maximum class capacity ____
4. Practicum (e.g., Co-op, Intern/Externship) maximum class capacity ____

EFFECTIVE TERM(S) Fall 2002

Part C: RATIONALE (Attach additional sheets as needed)

The course includes demonstrations and student interaction on specific machinery used in the materials industry. The lab does not include multiples of these machines. If more than 18 students are gathered around a machine, several miss out on the intended experience.

Signatures:

Faculty member/Department Chair Date: 3/29/02

Dean Date: 4/1/02

Part D: APPROVAL

X Approved

___ Returned (Additional information is needed to support the recommendation)

___ Not Approved because:

Signature: _____

Vice President, Instruction and Student Services Date: 4/3