

MASTER SYLLABUS

Course Discipline Code & No: AMS103 Title: Materials and Processes Effective Term Fall 2008

Division Code: HAT Department Code: INDT Org #: 14400

Don't publish: ☐ College Catalog ☐ Time Schedule ☐ Web Page

Reason for Submission. Check all that apply.

☒ New course approval ☐ Reactivation of inactive course

☐ Three-year syllabus review/Assessment report ☐ Inactivation (Submit this page only.)

Course change

Change information: Note all changes that are being made. Form applies only to changes noted.

☐ Consultation with all departments affected by this course is required. ☒ Total Contact Hours (total contact hours were: 45)

X Course discipline code & number (was MTT103)* ☒ Distribution of contact hours (contact hours were: lecture: 45 lab _____ clinical _____ other _____)

*Must submit inactivation form for previous course. ☐ Pre-requisite, co-requisite, or enrollment restrictions

X Course title (was Intr oduction to Materials) ☐ Change in Grading Method

X Course description ☐ Outcomes/Assessment

X Course objectives (minor changes) ☐ Objectives/Evaluation

☐ Credit hours (credits were: _____) ☐ Other _____

Rationale for course or course change. Attach course assessment report for existing courses that are being changed.

To meet the needs of the advanced manufacturing certificate topics on manufacturing processes will be expanded. Changes in materials over the years have changed the processes used to manufacture products. This class will maintain the core principles found in the existing materials class and expand information on manufacturing processes.

Approvals Department and divisional signatures indicate that all departments affected by the course have been consulted.

Department Review by Chairperson ☐ New resources needed ☐ All relevant departments consulted

Print: Thomas Penird Signature [Signature] Date: 3/11/08

Faculty/Preparer

Print: Thomas Penird Signature [Signature] Date: 3/11/08

Department Chair

Division Review by Dean ☐ Request for conditional approval

Recommendation ☒ Yes ☐ No [Signature] 3/18/08

Dean's/Administrator's Signature Date

Curriculum Committee Review

Recommendation ☐ Tabled ☒ Yes ☐ No [Signature] 3/26/08

Curriculum Committee Chair's Signature Date

Vice President for Instruction Approval [Signature] 4/1/08

Vice President's Signature Date

Approval ☒ Yes ☐ No ☐ Conditional

Do not write in shaded area.

Log File 3/18/08 Ecopy ☐ Banner 4/4 C&A Database 4/4 C&A Log File 4/4 Basic skills ☐ Contact fee ☒Please return completed form to the Office of Curriculum & Assessment and email an electronic copy to sjohn@wccnet.edu for posting on the website.

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***Complete ALL sections which apply to the course, even if changes are not being made.**

Course: AMS 103	Course title: Materials and Processes
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Credit hours: <u>3</u> If variable credit, give range: _____ to _____ credits	Contact hours per semester: <table style="width: 100%; border-collapse: collapse;"> <tr> <th></th> <th style="text-align: center; border-bottom: 1px solid black;">Student</th> <th style="text-align: center; border-bottom: 1px solid black;">Instructor</th> </tr> <tr> <td>Lecture:</td> <td style="text-align: center;"><u>45</u></td> <td style="text-align: center;"><u>45</u></td> </tr> <tr> <td>Lab:</td> <td style="text-align: center;"><u>15</u></td> <td style="text-align: center;"><u>15</u></td> </tr> <tr> <td>Clinical:</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Practicum:</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Other:</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Totals:</td> <td style="text-align: center;"><u>60</u></td> <td style="text-align: center;"><u>60</u></td> </tr> </table>		Student	Instructor	Lecture:	<u>45</u>	<u>45</u>	Lab:	<u>15</u>	<u>15</u>	Clinical:	_____	_____	Practicum:	_____	_____	Other:	_____	_____	Totals:	<u>60</u>	<u>60</u>	Are lectures, labs, or clinicals offered as separate sections? ☐ Yes - lectures, labs, or clinicals are offered in separate sections ☒ No - lectures, labs, or clinicals are offered in the same section	Grading options: ☐ P/NP (limited to clinical & practica) ☐ S/U (for courses numbered below 100) ☒ Letter grades
	Student	Instructor																						
Lecture:	<u>45</u>	<u>45</u>																						
Lab:	<u>15</u>	<u>15</u>																						
Clinical:	_____	_____																						
Practicum:	_____	_____																						
Other:	_____	_____																						
Totals:	<u>60</u>	<u>60</u>																						

Prerequisites. Select one:

☒ College-level Reading & Writing

☐ Reduced Reading/Writing Scores

☐ No Basic Skills Prerequisite

(Add information at Level I prerequisite)

(College-level Reading and Writing is not required.)

In addition to Basic Skills in Reading/Writing:

Level I (enforced in Banner)

Course	Grade	Test	Min. Score	Concurrent Enrollment (Can be taken together)	Corequisites Must be enrolled in this class also during the same semester
☐ and ☐ or _____	_____	_____	_____	☐	_____
☐ and ☐ or _____	_____	_____	_____	☐	_____
☐ and ☐ or _____	_____	_____	_____	☐	_____
☐ and ☐ or _____	_____	_____	_____	☐	_____

Level II (enforced by instructor on first day of class)

Course	Grade	Test	Min. Score
☐ and ☐ or _____	_____	_____	_____
☐ and ☐ or _____	_____	_____	_____

Enrollment restrictions (In addition to prerequisites, if applicable.)

☐ and ☐ or Consent required

☐ and ☐ or Admission to program required

☐ and ☐ or Other (please specify):

Program: _____

Please send syllabus for transfer evaluation to:

Conditionally approved courses are not sent for evaluation.

Insert course number and title you wish the course to transfer as.

☐ E.M.U. as _____

☐ _____ as _____

☐ U of M as _____

☐ _____ as _____

☐ _____ as _____

☐ _____ as _____

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Course AMS 103	Course title Materials and Processes
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Course description State the purpose and content of the course. Please limit to <u>500</u> characters.	This course includes an introduction to basic terms, mechanical and physical properties, and characteristics and structures of materials. Heat treatment of ferrous and non ferrous metals and the effect on tensile, torsion, and impact will be investigated. The study of common consumer products will identify material type and processes used in manufacturing. In a capstone project we will associate two different materials to a product identifying the advantages and disadvantages for both. Mechanical and physical properties, characteristics, ease of manufacturing, cost, environmental impact, and life cycle will be compared.	
Course outcomes List skills and knowledge students will have after taking the course. Assessment method Indicate how student achievement in each outcome will be assessed to determine student achievement for purposes of course improvement.	Outcomes (applicable in all sections) Identify general mechanical and physical properties for an array of materials Identify Manufacturing processes used in manufacturing. Evaluate, analyze, and propose the material selection for a given product.	Assessment Methods for determining course effectiveness Item Analysis of questions used in testing Item Analysis of questions used in testing Project (rubric)
Course Objectives Indicate the objectives that support the course outcomes given above. Course Evaluations Indicate how instructors will determine the degree to which each objective is met for each student.	Objectives (applicable in all sections) Outcome 1: 1) Identify: history of materials 2) Identify: structure of material 3) Identify: properties of materials 4) Identify: metals a) Ferrous b) Nonferrous c) Heat treatment i) Effects ii) Processes 5) Identify: wood, paper, lubricants & adhesives 6) Identify: surface engineering a) <i>Mechanical surface finishing</i> b) <i>Coatings</i> c) <i>Platings</i> d) <i>Hardening</i> Outcome 2 7) Identify: metal fabrication processes 8) Identify: plastics and composites a) thermoset b) thermoplastics 9) Identify: plastic fabrication processes 10) Identify: concretes, glasses & ceramics 11) Identify: concretes, glasses & ceramics fabrication processes	Evaluation Methods for determining level of student performance of objectives 1 – 13. One or more of the following; Multiple choice, matching, true false, fill in blanks or essays

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	Outcome 3 12) 12. Evaluate, analyze, and propose: selection process a) <i>Mechanical and physical properties</i> b) <i>Characteristics</i> c) <i>Environmental requirement</i> d) <i>Ease of manufacturing</i> e) <i>Cost</i> 13) 13. Evaluate: life cycle of materials	12 & 13 PROJECT
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List all new resources needed for course, including library materials.

Student Materials:

List examples of types Texts Supplemental reading Supplies Uniforms Equipment Tools Software	Materials and Processes, Course pack Calculator	Estimated costs \$ 50
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Equipment/Facilities: Check all that apply. (All classrooms have overhead projectors and permanent screens.)

Check level <u>only</u> if the specified equipment is needed for <u>all</u> sections of a course. ☐ Level I classroom Permanent screen & overhead projector ☐ Level II classroom Level I equipment plus TV/VCR x Level III classroom Level II equipment plus data projector, computer, faculty workstation	☐ Off-Campus Sites ☐ Testing Center ☐ Computer workstations/lab ☐ ITV ☐ TV/VCR ☐ Data projector/computer ☐ Other _____
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Assessment plan:

Learning outcomes to be assessed (list from Page 3)	Assessment tool	When assessment will take place (semester & year)	Course section(s)/other population	Number students to be assessed
Identify general mechanical and physical properties for an array of materials	TEST	Fall 2011 every three years after	All sections in the year for assessment	All students in the year of assessment
Identify Manufacturing processes used in manufacturing.	TEST	Fall 2011 every three years after	All sections in the year for assessment	All students in the year of assessment
Evaluate, analyze, and propose the material selection for a given product.	Project (rubric)	Fall 2011 every three years after	All sections in the year for assessment	Random selection of 10 written reports will be assessed

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1. Indicate how the above assessment(s) will be scored and evaluated (e.g. departmentally developed rubric, external evaluation, other). Attach the rubric/scoring guide.

Outcome 1 & 2: Specific Questions, selected by the department, will be extracted from test given during the semester and an item analysis will be performed.

Outcome 3: Capstone project written by students will be evaluated by the department using a rubric.

2. Indicate the standard of success to be used for this assessment.

Outcome 1&2: Questions related to these outcomes in whole should see 75% of the students achieving 75% or better.

Outcome 3: 75% of the written reports evaluated should score an average score of 70 or greater.

3. Indicate who will score and analyze the data (data must be blind-scored).

Department faculty

4. Explain the process for using assessment data to improve the course.

Outcome 1 & 2: If Questions used for the item analysis score poorly;

A. The course content will be evaluated for coverage of the materials

B. The question will be evaluated for interpretation.

Outcome 3: If scoring on the rubric is low the department will evaluate methods of approaching project.