

ME 183: MATERIALS SELECTION IN ENGINEERING DESIGN

In Workflow

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Approval Path

1. Thu, 22 Oct 2020 18:56:24 GMT
Akihiko Kumagai (akuma): Approved for ME Committee Chair
2. Thu, 22 Oct 2020 18:57:55 GMT
Akihiko Kumagai (akuma): Approved for ME Chair
3. Fri, 23 Oct 2020 18:25:31 GMT
Gareth Figgess (figgess): Approved for ECS College Committee Chair
4. Fri, 23 Oct 2020 18:35:53 GMT
Kevan Shafizadeh (kevan): Approved for ECS Dean

New Course Proposal

Date Submitted: Thu, 22 Oct 2020 18:47:38 GMT

Viewing: ME 183 : Materials Selection in Engineering Design

Last edit: Fri, 23 Oct 2020 18:35:27 GMT

Changes proposed by: Rustin Vogt (102023179)

Contact(s):

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Catalog Title:

Materials Selection in Engineering Design

Class Schedule Title:

Materials Selection Eng Design

Academic Group: (College)

ECS - Engineering & Computer Science

Academic Organization: (Department)

Mechanical Engineering

Will this course be offered through the College of Continuing Education (CCE)?

No

Catalog Year Effective:

Spring 2021 (2021/2022 Catalog)

Subject Area: (prefix)

ME - Mechanical Engineering

Catalog Number: (course number)

183

Course ID: (For administrative use only.)

TBD

Units:

3

In what term(s) will this course typically be offered?

Fall, Spring

Does this course require a room for its final exam?

Yes, final exam requires a room

Does this course replace an existing experimental course?

Yes

This course replaces the following experimental course:

ME 196F - Materials Selection in Engineering Design

This course complies with the credit hour policy:

Yes

Justification for course proposal:

The Mechanical Engineering program at Sac State provides course work that focuses on material behavior, machine design, and manufacturing. Additional course work quantitatively integrating these subject areas together related to materials selection and processes selection would further develop graduates breadth to the design and manufacturing field.

Course Description: (Not to exceed 80 words and language should conform to catalog copy.)

Quantitative treatment of materials selection for engineering applications. Discussion of the relationship between design parameters and materials properties. Emphasis on the influence of processing and fabrication on the properties of metals, ceramics, polymers and composites as related to the overall design process. Sustainability, Eco-Design, and manufacturability considerations.

Are one or more field trips required with this course?

No

Fee Course?

No

Is this course designated as Service Learning?

No

Does this course require safety training?

No

Does this course require personal protective equipment (PPE)?

No

Does this course have prerequisites?

Yes

Prerequisite:

ENGR 45 and ME 116. ME 116 may be taken concurrently.

Prerequisites Enforced at Registration?

Yes

Does this course have corequisites?

No

Graded:

Letter

Approval required for enrollment?

No Approval Required

Course Component(s) and Classification(s):

Lecture

Lecture Classification

CS#02 - Lecture/Discussion (K-factor=1 WTU per unit)

Lecture Units

3

Is this a paired course?

No

Is this course crosslisted?

No

Can this course be repeated for credit?

No

Can the course be taken for credit more than once during the same term?

No

Description of the Expected Learning Outcomes: Describe outcomes using the following format: 'Students will be able to: 1), 2), etc.'

Students will be able to:

- 1) Determine material property relationships to manufacturing
- 2) Calculate material property functions with respect to design constraints
- 3) Optimize manufacturing process selection and material selection as it relates to design parameters
- 4) Design for eco-design and life cycle assessment
- 5) Make decisions with multiple design objectives
- 6) Perform cost evaluation of the manufacturing process

Attach a list of the required/recommended course readings and activities:

Syllabus_Materials Selection_Vogt.doc

Assessment Strategies: A description of the assessment strategies (e.g., portfolios, examinations, performances, pre-and post-tests, conferences with students, student papers) which will be used by the instructor to determine the extent to which students have achieved the learning outcomes noted above.

Homework assignments (including programming) (ELO 1, 2, 3, 4, 5,6);

Quizzes (ELO 1, 2, 3, 4, 5,6);

project (ELO 1, 2,3,4);

final examination (ELO 1,2,3,4,5)

For whom is this course being developed?

Majors in the Dept

Is this course required in a degree program (major, minor, graduate degree, certificate?)

No

Does the proposed change or addition cause a significant increase in the use of College or University resources (lab room, computer)?

No

Will there be any departments affected by this proposed course?

No

I/we as the author(s) of this course proposal agree to provide a new or updated accessibility checklist to the Dean's office prior to the semester when this course is taught utilizing the changes proposed here.

I/we agree

University Learning Goals**Undergraduate Learning Goals:**

Competence in the disciplines

Is this course required as part of a teaching credential program, a single subject, or multiple subject waiver program (e.g., Liberal Studies, Biology) or other school personnel preparation program (e.g., School of Nursing)?

No

GE Course and GE Goal(s)

Is this a General Education (GE) course or is it being considered for GE?

No

Key: 14352