ME 152: TURBOMACHINERY DESIGN

In Workflow

1. ME Committee Chair (akuma@csus.edu)
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10. Registrar's Office (wwd22@csus.edu)
11. PeopleSoft (PeopleSoft@csus.edu)

Approval Path

1. Tue, 22 Oct 2019 20:53:22 GMT
   Akihiko Kumagai (akuma): Rollback to Initiator
2. Tue, 22 Oct 2019 21:03:29 GMT
   Akihiko Kumagai (akuma): Approved for ME Committee Chair
3. Tue, 22 Oct 2019 21:04:15 GMT
   Akihiko Kumagai (akuma): Approved for ME Chair
4. Fri, 25 Oct 2019 18:00:30 GMT
   Troy Topping (troy.topping): Approved for ECS College Committee Chair
5. Thu, 31 Oct 2019 17:11:22 GMT
   Kevan Shafizadeh (kevan): Approved for ECS Dean

Date Submitted:Tue, 22 Oct 2019 20:58:14 GMT

Viewing:ME 152 : Turbomachinery Design

Last edit:Fri, 25 Oct 2019 18:00:24 GMT

Changes proposed by: Akihiko Kumagai (101016054)

Contact(s):

Name (First Last)	Email	Phone 999-999-9999
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Catalog Title:
Turbomachinery Design

Class Schedule Title:
Turbomachinery 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:
Fall 2020 (2020/2021 Catalog)

Subject Area: (prefix)
ME - Mechanical Engineering

Catalog Number: (course number)
152

Course ID: (For administrative use only.)
148246

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?
No

This course complies with the credit hour policy:
Yes

Justification for course proposal:
The department has decided that the course prerequisites need to be updated. The current prerequisite is ME 105 Introduction to Technical Problem Solving. Although the computer programming skill obtained from ME 105 may be beneficial for learning some materials of ME 152, it is not essential. Rather than ME 105, fundamental knowledge based on the two courses ENGR 124 Thermodynamics and ME 120 Fluid Mechanics for Mechanical Engineers is essential for studying materials of ME 152. Therefore the prerequisite requirement is changed from "ME 105" to "ENGR 124 and ME 120."

Course Description: (Not to exceed 80 words and language should conform to catalog copy.)
Theoretical analysis of energy transfer between fluid and rotor; principles of axial, mixed, and radial flow compressors and turbines. Applications and computer-aided design of various types of turbomachines.

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:
ME 120
ENGR 124

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):

Discussion

Discussion Classification

CS#04 - Lecture /Recitation (K-factor=1 WTU per unit)

Discussion 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."

1. Describe thermo-fluids concepts applicable to turbomachinery such as Reynolds transport theorem, First and Second laws, isentropic efficiencies, ideal gas law, potential flows.
2. Explain working principles applicable to centrifugal, axial and mixed flow machinery.
3. Describe concepts applicable to hydro and wind turbines. Develop approximations for both compressible and incompressible flows.
4. Apply the basic design concepts of turbomachinery.

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

Fall2019-TurboMachinery-Syllaus.docx

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: ELOs 1-3
Exams: ELOs 1-3
Group project: ELOs 1-4

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
Intellectual and practical skills

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

Reviewer Comments:
Akihiko Kumagai (akuma) (Tue, 22 Oct 2019 20:53:22 GMT): Rollback: Edit the justification.

Key: 3313