Minutes of the Campus Curricula Committee Meeting
August 15, 2017
9:00am, 106 Parker Hall
(For Faculty Senate Meeting of September 14, 2017)

Attendees: Steve Raper, Barry Flachsbart, Petra Dewitt, Katie Shannon, Paul Worsey, Tom Schuman, Kristy Giacomelli and Brittany Parnell

The following curriculum forms were discussed and approved:

Course Change Forms:

File: 2564.1	AERO ENG 2861: Aerospace Vehicle Performance
File: 776.5	AERO ENG 3131: Aerodynamics I
File: 873.1	AERO ENG 3251: Aerospace Structures I
File: 835.1	AERO ENG 3613: Aerospace Mechanics I
File: 4428	ART 3500: Innovation Through Design Thinking
File: 4426	GEOLOGY 6098: Advanced Geologic Field Methods
File: 765.3	MECH ENG 2519: Thermodynamics
File: 105.1	MECH ENG 2527: Thermal Analysis
File: 1474.1	MECH ENG 2653: Introduction To Manufacturing Processes
File: 2099.1	MECH ENG 2761: Introduction To Design
File: 517.3	MECH ENG 3313: Machine Dynamics
File: 1286.3	MECH ENG 3411: Modeling and Analysis of Dynamic Systems
File: 2026.1	MECH ENG 4840: Mechanical Instrumentation
File: 1729.1	MECH ENG 5139: Computational Fluid Dynamics
File: 1603.1	MECH ENG 5763: Principles And Practice Of Computer Aided Design
File: 1579.1	MECH ENG 5830: Applied Computational Methods
File: 4433	MET ENG 4325: Ferrous Microstructures
File: 4434	MET ENG 6325: Advanced Ferrous Microstructures
File: 1563.8	SPANISH 4311: Advanced Spanish Conversation
File: 986.3	TCH COM 6450: Advanced International Technical Communication

Degree Change Forms:

File: 239.9	ANA&DTA-MI: Business Analytics and Data Science Minor
File: 153.45	CP ENG-BS: Computer Engineering BS
File: 132.7	TCH COM-BS: Technical Communication BS

Experimental Course Forms:

File: 4430.8	ELEC ENG 6001.004: Adaptive Control

File: 4429.4	ELEC ENG 6001.005: High Frequency Sensors and Sensing Systems
File: 4431.3	EXP ENG 6001.003: Experimental Techniques for Ultra High Velocity Impact
File: 4432.6	MS&E 6001.001: Advanced Chemistry of Construction Materials
File: 4436.6	PET ENG 4001.002: Petroleum Engineering Applications of MATLAB
File: 4437.5	PET ENG 6001.008: Advanced Petroleum Engineering Applications with MATLAB
File: 4427.4	POL SCI 3001.002: Policy for Science, Technology, and Innovation
File: 4435.4	STAT 6001.004: Foundations of Statistical Learning II

The following forms were tabled:

File: 942.1	ARCH ENG 4800: Principles of HVAC I
File: 2069.5	ARCH ENG 4820: Building Lighting Systems
File: 4219.5	ARCH ENG 4850: Building Electrical Systems
File: 4408	ENG MGT 6216: Financial Data Analysis
File: 249	PROPOSED: Master of Science in Explosives Technology

AY 2017-2018 Course Curricula Meeting Dates were discussed and Submission Deadlines were approved.

The meeting adjourned at 10:00am.

Stephen A. Raper, Chair
Missouri S&T Campus Curricula Committee

Course Inventory Change Request

Date Submitted: 04/21/17 1:12 pm

Viewing: **AERO ENG 2861 : Aerospace Vehicle Performance**

File: 2564.1

Last edit: 05/16/17 9:15 am

Changes proposed by: nisbett

Programs referencing this course

AE ENG-BS: Aerospace Engineering BS

AE ENG-MI: Aerospace Engineering Minor

Other Courses referencing this course

In The Prerequisites:

AERO ENG 2780 : Introduction to Aerospace Design

AERO ENG 2790 : Introduction to Spacecraft Design

AERO ENG 3131 : Aerodynamics I

Requested Effective Change Date: **Spring 2018** ~~Fall 2014~~

Department

Mechanical & Aerospace Engineering

Discipline

In Workflow

1. **RMECHENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/21/17 2:31 pm James Drallmeier (drallmei): Approved for RMECHENG Chair
2. 04/22/17 3:52 pm Lahne Black

Aerospace Engineering (AERO ENG)

Course Number 2861

Title

(lahne): Approved for CCC Secretary
3. 05/22/17 12:30 pm
sraper: Approved for Engineering DSCC Chair
4. 06/28/17 2:57 pm
Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 10:45 am
Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 08/16/17 11:28 am
sraper: Approved for Campus Curricula Committee Chair

Aerospace Vehicle Performance

Abbreviated Course Title Aero Vehicle Performance

Catalog Description

Nature and theory of lift, drag, performance, and stability and control of aerospace vehicles.

Prerequisites

A ~~"C" or better~~ grade **of "C" or better** in **each of the following:** ~~both Math 1215 and Physics 1135.~~ **Math 1215 or Math 1221; Physics 1135 or Physics 1111.**

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0

Required for Majors **Yes** ~~No~~

Elective for Majors No

Justification for change:

Adding acceptable alternate courses as prerequisites for non-engineering majors and transfer students.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

sraper (05/16/17 9:15 am): changed prereq to current "standard". Checked required for majors box.

Key: 2564

Preview Bridge

Course Inventory Change Request

Date Submitted: 04/21/17 1:16 pm

Viewing: **AERO ENG 3131 : Aerodynamics I**

File: 776.5

Last approved: 10/19/15 3:33 am

Last edit: 04/21/17 1:16 pm

Changes proposed by: nisbett

Programs referencing this course

AE ENG-BS: Aerospace Engineering BS

AE ENG-MI: Aerospace Engineering Minor

Other Courses referencing this course

In The Prerequisites:

AERO ENG 3171 : Aerodynamics II

AERO ENG 3361 : Flight Dynamics and Control

AERO ENG 4133 : Introduction to Aerothermochemistry

AERO ENG 4882 : Experimental Methods in Aerospace Engineering I

AERO ENG 5131 : Intermediate Thermofluid Mechanics

AERO ENG 5570 : Plasma Physics I

AERO ENG 5715 : Concurrent Engineering

MECH ENG 5131 : Intermediate Thermofluid Mechanics

MECH ENG 5570 : Plasma Physics I

MECH ENG 5715 : Concurrent Engineering

In Workflow

1. **RMECHENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/21/17 2:32 pm James Drallmeier (drallmei): Approved for RMECHENG Chair
2. 04/22/17 3:52 pm Lahne Black

NUC ENG 4370 : Plasma Physics I
NUC ENG 5370 : Plasma Physics I
PHYSICS 4543 : Plasma Physics I

Requested Effective Change Date: Spring **2018** ~~2016~~

Department
Mechanical & Aerospace Engineering

Discipline
Aerospace Engineering (AERO ENG)

Course Number: 3131

Title
Aerodynamics I

Abbreviated Course Title: Aerodynamics I

(lahne): Approved for CCC Secretary
3. 05/22/17 12:30 pm
sraper: Approved for Engineering DSCC Chair
4. 06/28/17 3:14 pm
Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 10:46 am
Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 08/16/17 11:28 am
sraper: Approved for Campus Curricula Committee Chair

History

1. Oct 19, 2015 by isaac (776.1)

Catalog Description

A study of the fundamental concepts of fluid mechanics as applied to aerodynamic applications with both differential and control volume analysis. Theory and application of viscous and inviscid incompressible flow including boundary layer theory and two dimensional airfoil theory.

Prerequisites

A grade of "C" or better in each of **the following:** ~~Aero Eng 2861, Math 1214, Math 1215, Math 2222 and Physics 1135.~~ **Aero Eng 2861; Math 1214 or Math 1208; Math 1215 or Math 1221; Math 2222; Physics 1135 or Physics 1111.**

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	Yes			
Elective for Majors	No			

Justification for change:

Adding acceptable alternate courses as prerequisites for non-engineering majors and transfer students.

Semesters previously offered as an experimental course

Co-Listed
Courses:

Course Reviewer
Comments

Key: 776
Preview Bridge

Course Inventory Change Request

Date Submitted: 04/21/17 1:19 pm

Viewing: **AERO ENG 3251 : Aerospace Structures I**

File: 873.1

Last edit: 05/16/17 9:17 am

Changes proposed by: nisbett

Programs referencing this course

AE ENG-BS: Aerospace Engineering BS

AE ENG-MI: Aerospace Engineering Minor

Other Courses referencing this course

In The Prerequisites:

AERO ENG 4253 : Aerospace Structures II

AERO ENG 4780 : Aerospace Systems Design I

AERO ENG 4790 : Spacecraft Design I

AERO ENG 4883 : Experimental Methods in Aerospace Engineering II

AERO ENG 5353 : Aeroelasticity

AERO ENG 5758 : Integrated Product Development

Spring 2018 ~~Fall 2014~~

In Workflow

1. **RMECHENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/21/17 2:32 pm James Drallmeier (drallmei): Approved for RMECHENG Chair
2. 04/22/17 3:52 pm Lahne Black

Requested Effective Change Date

Department
Mechanical & Aerospace Engineering

Discipline
Aerospace Engineering (AERO ENG)

Course Number 3251

Title
Aerospace Structures I

Abbreviated Course Title Aerospace Structures I

Catalog Description

(lahne): Approved for CCC Secretary
3. 05/22/17 12:30 pm
sraper: Approved for Engineering DSCC Chair
4. 06/28/17 3:26 pm
Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 10:46 am
Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 08/16/17 11:28 am
sraper: Approved for Campus Curricula Committee Chair

An introduction to various loads on aerospace vehicles. Basic theory and analysis of typical aerospace and related vehicle structures subjected to steady loading. An overview of various failure theories including yielding, buckling, fracture and fatigue. Design of thin walled structures. Introduction to advanced composite materials.

Prerequisites

A grade of "C" or better in each of the following: Math 1214 ~~"C"~~ or **Math 1208; Math** ~~better in Math 1214 (or 1208),~~ 1215 **or Math 1221; Math 2222;** ~~(or 1221), 2222,~~ Physics 1135 **or Physics 1111;** ~~and~~ Civ Eng 2210.

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	**Yes** ~~No~~			
Elective for Majors	No			

Justification for change:

Adding acceptable alternate course as prerequisites for non-engineering majors and transfer students.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer

Comments

sraper (05/16/17 9:16 am): Changed prereqs to current "standard". Checked required for majors box.

Key: 873

Preview Bridge

Course Inventory Change Request

Date Submitted: 04/21/17 1:37 pm

Viewing: **AERO ENG 3613 : Aerospace Mechanics I**

File: 835.1

Last edit: 05/16/17 9:17 am

Changes proposed by: nisbett

Programs referencing this course

AE ENG-BS: Aerospace Engineering BS

AE ENG-MI: Aerospace Engineering Minor

AP MATH-BS: Applied Mathematics BS

Other Courses referencing this course

In The Prerequisites:

AERO ENG 3361 : Flight Dynamics and Control

AERO ENG 5307 : Vibrations I

AERO ENG 5309 : Engineering Acoustics I

AERO ENG 5313 : Intermediate Dynamics of Mechanical and Aerospace Systems

AERO ENG 5614 : Spaceflight Mechanics

MECH ENG 5307 : Vibrations I

MECH ENG 5309 : Engineering Acoustics I

MECH ENG 5313 : Intermediate Dynamics Of Mechanical And Aerospace Systems

In Workflow

1. **RMECHENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/21/17 2:33 pm James Drallmeier (drallmei): Approved for RMECHENG Chair
2. 04/22/17 3:52 pm Lahne Black

Requested Effective Change Date **Spring 2018** ~~Fall 2014~~

Department
Mechanical & Aerospace Engineering

Discipline
Aerospace Engineering (AERO ENG)

Course Number 3613

Title
Aerospace Mechanics I

Abbreviated Course Title Aerospace Mechanics I

Catalog Description

(lahne): Approved for CCC Secretary
3. 05/22/17 12:30 pm
sraper: Approved for Engineering DSCC Chair
4. 06/28/17 3:53 pm
Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 10:46 am
Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 08/16/17 11:28 am
sraper: Approved for Campus Curricula Committee Chair

Introduction to celestial mechanics and an analytical study of space flight. Emphasis is placed on satellite orbits and general theory of gyrodynamics.

Prerequisites

Math 3304; a grade of "C" or better in each of **the following:** ~~Aero Eng 2360 (or Mech Eng 2360), Math 1214 (or 1208), 1215 (or 1221),2222, and Physics 1135.~~ **Aero Eng 2360 or Mech Eng 2360; Math 1214 or Math 1208; Math 1215 or Math 1221; Math 2222; Physics 1135 or Physics 1111.**

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	**Yes** ~~No~~			
Elective for Majors	No			

Justification for change:

Adding acceptable alternate course as prerequisite for non-engineering majors and transfer students.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer

Comments

sraper (05/16/17 9:17 am): Changed effective date to Spring 18 and checked required for majors box.

Key: 835

Preview Bridge

Course Inventory Change Request

New Course Proposal

Date Submitted: 05/31/17 1:15 pm

Viewing: **ART 3500 : Innovation Through Design Thinking**

File: 4428

Last edit: 08/15/17 3:40 pm

Changes proposed by: bartonch

Requested Effective Change Date	Spring 2018
Department	Arts, Languages, & Philosophy
Discipline	Art (ART)
Course Number	3500
Title	

In Workflow

1. **RPHILOSO Chair**
2. **CCC Secretary**
3. **Arts & Humanities DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 05/31/17 2:51 pm Audra Merfeld-Langston (audram): Approved for RPHILOSO Chair

2. 06/05/17 4:27 pm
   Brittany Parnell (ershenb): Approved for CCC Secretary
3. 06/09/17 9:37 am
   Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
4. 06/30/17 8:10 am
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 10:47 am
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 08/16/17 11:28 am
   sraper: Approved for Campus Curricula Committee Chair

Innovation Through Design Thinking

Abbreviated Course Title: Innov Design Thinking

Catalog Description

Design thinking is a human-centered approach to innovation. Students will investigate and address a variety of identified human-centered problems through group collaboration, creative problem-solving, and prototyping. A multidisciplinary approach combines science, technology, engineering, math, and art with design thinking in a creative atmosphere.

Prerequisites

none

Field Trip Statement

Credit Hours	LEC: 0	LAB: 3	IND: 0	RSD: 0
Total: 3				
Required for Majors	No			
Elective for Majors	No			

Justification for new course:

Course has been taught as a experimental course since FS 2015.

Semesters previously offered as an experimental course

FS 2015, SP 2016, FS 2016

Co-Listed Courses:

Course Reviewer Comments

audram (05/31/17 11:36 am): Rollback: Course description needs to be updated, please.

dewittp (06/09/17 9:37 am): Updated course description.

Key: 4428

Preview Bridge

Course Inventory Change Request

New Course Proposal

Date Submitted: 04/14/17 4:41 pm

Viewing: **GEOLOGY 6098 : Advanced Geologic Field Methods**

File: 4426

Last edit: 08/16/17 11:11 am

Changes proposed by: jhogan

Requested Effective Change Date	Spring 2018
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Geology (GEOLOGY)
Course Number	6098
Title	

In Workflow

1. **RGEOSENG Chair**
2. **CCC Secretary**
3. **Sciences DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/17/17 12:23 pm Francisca Oboh-Ikuenobe (ikuenobe): Approved for RGEOSENG Chair

2. 04/17/17 12:35 pm
   Lahne Black (lahne): Approved for CCC Secretary
3. 07/25/17 1:23 pm
   Ilene Morgan (imorgan): Approved for Sciences DSCC Chair
4. 07/25/17 4:30 pm
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 11:12 am
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 08/16/17 11:28 am
   sraper: Approved for Campus Curricula Committee Chair

Advanced Geologic Field Methods

Abbreviated Course Title: Adv Geo Field Methods

Catalog Description

Adv. instruction in theory and practice of qualitative/quantitative description of spatial relationships of rock types in areas exhibiting complex deformation. Emphasis on expl. learning where students plan, implement, and reflect on outcomes for sev. scientific field campaigns in a manner consistent with prof. scientific practices. Field trip fee required.

Prerequisites

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			
Elective for Majors	No			

Justification for new course:

Students pursuing a graduate degree that have not had an intensive course in geologic field methods (many schools are unable to offer such a course) and need one will register for this course.

Semesters previously offered as an experimental course

The Advanced Field Geology course has been taught by me for many years. This course will be taught at the same time and is really not an experimental course in that regard. However, graduate students will be using more sophisticated techniques to process field data (such as the software MOVE) that we are unable to

offer to the undergraduates due to availability and the intensive nature of instruction.

Co-Listed Courses:

Course Reviewer Comments

imorgan (07/13/17 1:59 pm): This course will be offered as a graduate dual for Geology 4097, which is why it is not being proposed as an experimental course. I changed the effective date to Spring 2018 and added the Field Trip statement.

Key: 4426

Preview Bridge

Course Inventory Change Request

Date Submitted: 04/21/17 1:39 pm

Viewing: **MECH ENG 2519 : Thermodynamics**

File: 765.3

Last approved: 10/19/15 3:34 am

Last edit: 04/21/17 1:39 pm

Changes proposed by: nisbett

Programs referencing this course

- AE ENG-BS: Aerospace Engineering BS
- AP MATH-BS: Applied Mathematics BS
- CP ENG-BS: Computer Engineering BS
- EL ENG-BS: Electrical Engineering BS
- MC ENG-BS: Mechanical Engineering BS

Other Courses referencing this course

In The Prerequisites:

- AERO ENG 3171 : Aerodynamics II
- AERO ENG 5519 : Advanced Thermodynamics
- MECH ENG 3131 : Thermofluid Mechanics I
- MECH ENG 3521 : Applied Thermodynamics
- MECH ENG 3525 : Heat Transfer

In Workflow

1. **RMECHENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/21/17 2:33 pm James Drallmeier (drallmei): Approved for RMECHENG Chair
2. 04/22/17 3:52 pm Lahne Black

MECH ENG 4840 : Mechanical Instrumentation

MECH ENG 5519 : Advanced Thermodynamics

Requested Effective Change Date: Spring **2018** ~~2016~~

Department
Mechanical & Aerospace Engineering

Discipline
Mechanical Engineering (MECH ENG)

Course Number: 2519

Title

Thermodynamics

Abbreviated Course Title: Thermodynamics

(lahne): Approved for CCC Secretary
3. 05/22/17 12:30 pm
sraper: Approved for Engineering DSCC Chair
4. 06/30/17 8:14 am
Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 11:13 am
Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 08/16/17 11:28 am
sraper: Approved for Campus Curricula Committee Chair

History

1. Oct 19, 2015 by nisbett (765.1)

Catalog Description

Energy transformations and the relation of energy to the status of matter. Fundamental laws, concepts, and modes of analysis which underlie all applications of energy conversion in engineering.

Prerequisites

A grade of "C" or better in each of **the following:** ~~Comp Sci 1570 or Comp Sci 1970 or Comp Sci 1971 or Comp Sci 1972, Math 1214 (or Math 1208), Math 1215 (or Math 1221), Math 2222, and Physics 1135.~~ **Comp Sci 1570 or Comp Sci 1970 or Comp Sci 1971 or Comp Sci 1972; Math 1214 or Math 1208; Math 1215 or Math 1221; Math 2222; Physics 1135 or Physics 1111.**

Field Trip Statement

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0
Total: 3				
Required for Majors	Yes			
Elective for Majors	No			

Justification for change:

Adding acceptable alternate course as prerequisite for non-engineering majors and transfer students.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 765

Preview Bridge

Course Inventory Change Request

Date Submitted: 04/21/17 1:40 pm

Viewing: **MECH ENG 2527 : Thermal Analysis**

File: 105.1

Last edit: 04/21/17 1:40 pm

Changes proposed by: nisbett

Programs referencing this course

- AP MATH-BS: Applied Mathematics BS
- ARC ENG-BS: Architectural Engineering BS
- CP ENG-BS: Computer Engineering BS
- EL ENG-BS: Electrical Engineering BS
- ENG MG-BS: Engineering Management BS
- MI ENG-BS: Mining Engineering BS
- PE ENG-BS: Petroleum Engineering BS

Other Courses referencing this course

In The Prerequisites:

- ARCH ENG 4800 : Principles of HVAC I
- ARCH ENG 5850 : Residential Renewable Energy Systems
- MECH ENG 5571 : Environmental Controls
- MECH ENG 5575 : Mechanical Systems For Environmental Control

In Workflow

1. **RMECHENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/21/17 2:33 pm James Drallmeier (drallmei): Approved for RMECHENG Chair
2. 04/22/17 3:52 pm Lahne Black

MIN ENG 4113 : Mine Atmosphere Control

MIN ENG 4912 : Mine Power And Drainage

Requested Effective Change Date: **Spring 2018** ~~Fall 2014~~

Department: Mechanical & Aerospace Engineering

Discipline: Mechanical Engineering (MECH ENG)

Course Number: 2527

Title:

Thermal Analysis

Abbreviated Course Title: Thermal Analysis

Catalog Description:

(lahne): Approved for CCC Secretary

3. 05/22/17 12:30 pm
   sraper: Approved for Engineering DSCC Chair
4. 06/30/17 8:16 am
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 11:13 am
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 08/16/17 11:29 am
   sraper: Approved for Campus Curricula Committee Chair

Basic principles of thermodynamics and heat transfer. First and second laws of thermodynamics and applications to engineering systems. Fundamentals of heat transfer by conduction, convection, and radiation with applications. Not for mechanical engineering majors.

Prerequisites

Math 1215 **or Math 1221;** ~~(or 1221),~~ Physics **1135 or Phys 1111.** ~~1135.~~

Field Trip Statement

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0
Total: 3				

Required for Majors	No
Elective for Majors	No

Justification for change:

Adding acceptable alternate course as prerequisite for non-engineering majors and transfer students.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 105

Preview Bridge

Course Inventory Change Request

Date Submitted: 04/24/17 10:50 am

Viewing: **MECH ENG 2653 : Introduction To Manufacturing Processes**

File: 1474.1

Last edit: 05/16/17 9:22 am

Changes proposed by: nisbett

Programs referencing this course

MC ENG-BS: Mechanical Engineering BS

Other Courses referencing this course

In The Prerequisites:

MECH ENG 2761 : Introduction To Design

MECH ENG 3653 : Manufacturing

MECH ENG 3708 : Machine Design I

MET ENG 4420 : Metals Casting

MET ENG 5420 : Advanced Metals Casting

Requested Effective Change Date: **Spring 2018** ~~Fall 2014~~

Department

Mechanical & Aerospace Engineering

In Workflow

1. **RMECHENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/24/17 10:55 am
   James Drallmeier (drallmei): Approved for RMECHENG Chair
2. 04/24/17 11:58 am

Discipline

Mechanical Engineering (MECH ENG)

Course Number 2653

Title

Introduction To Manufacturing Processes

Abbreviated Course Title Intro To Mfg Processes

Catalog Description

Lahne Black (lahne): Approved for CCC Secretary

3. 05/22/17 12:30 pm
   sraper: Approved for Engineering DSCC Chair
4. 06/30/17 8:17 am
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 11:13 am
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 08/16/17 11:29 am
   sraper: Approved for Campus Curricula Committee Chair

Introduction into the fundamentals of manufacturing processes. Welding, joining, casting, forming, powder metallurgy and material removal are covered. The material is presented in a descriptive fashion with emphasis on the fundamental working of the processes, their capabilities, applications, advantages and limitations.

Prerequisites

Mech Eng 1720; a grade of "C" or better in Phys 1135 or Phys 1111 ~~Mech Eng 1720.~~

Field Trip Statement

Credit Hours Total: 3	LEC: 2	LAB: 1	IND: 0	RSD: 0
Required for Majors	**Yes** ~~No~~			
Elective for Majors	No			

Justification for change:

Additional prerequisite to increase the level of preparation and progress in the engineering curriculum.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

sraper (05/16/17 9:22 am): Changed prereqs to current standard. Checked required for majors box.

Key: 1474
Preview Bridge

Course Inventory Change Request

Date Submitted: 04/21/17 1:42 pm

Viewing: **MECH ENG 2761 : Introduction To Design**

File: 2099.1

Last edit: 05/16/17 9:23 am

Changes proposed by: nisbett

Programs referencing this course

MC ENG-BS: Mechanical Engineering BS

Other Courses referencing this course

In The Prerequisites:

MECH ENG 3708 : Machine Design I

MECH ENG 5763 : Principles And Practice Of Computer Aided Design

Requested Effective Change Date **Spring 2018** ~~Fall 2014~~

Department

Mechanical & Aerospace Engineering

Discipline

Mechanical Engineering (MECH ENG)

In Workflow

1. **RMECHENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/21/17 2:34 pm James Drallmeier (drallmei): Approved for RMECHENG Chair
2. 04/22/17 3:52 pm Lahne Black

Course Number	2761
Title	Introduction To Design
Abbreviated Course Title	Introduction To Design
Catalog Description	

(lahne): Approved for CCC Secretary
3. 05/22/17 12:30 pm
sraper: Approved for Engineering DSCC Chair
4. 06/30/17 8:19 am
Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 11:14 am
Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 08/16/17 11:29 am
sraper: Approved for Campus Curricula Committee Chair

Introduces the process of design with emphasis on creativity and design visualization. Solid modeling is presented as a design tool. The solid modeling environment will also be used to reinforce the concepts of tolerancing, dimensioning, and multiview representation. Concurrent engineering will be introduced in a group design project.

Prerequisites

Mech Eng 1720, Mech Eng 2653, preceded or accompanied by Civ Eng 2200; a grade of "C" or better in each of **the following:** ~~Math 1214 (or 1208), Physics 1135.~~ **Math 1214 or Math 1208; Physics 1135 or Physics 1111.**

Field Trip Statement

Credit Hours Total: 3	LEC: 2	LAB: 1	IND: 0	RSD: 0
Required for Majors	**Yes** ~~No~~			
Elective for Majors	No			

Justification for change:

Adding acceptable alternate course as prerequisite for non-engineering majors and transfer students.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer

Comments

sraper (05/16/17 9:23 am): Changed effective date to Sp 2018 and checked required for majors box.

Key: 2099

Preview Bridge

Course Inventory Change Request

Date Submitted: 04/21/17 1:43 pm

Viewing: **MECH ENG 3313 : Machine Dynamics**

File: 517.3

Last approved: 10/19/15 3:33 am

Last edit: 04/21/17 1:43 pm

Changes proposed by: nisbett

Programs referencing this course

AP MATH-BS: Applied Mathematics BS

MC ENG-BS: Mechanical Engineering BS

Other Courses referencing this course

In The Prerequisites:

AERO ENG 5313 : Intermediate Dynamics of Mechanical and Aerospace Systems

AERO ENG 5449 : Robotic Manipulators and Mechanisms

AERO ENG 5715 : Concurrent Engineering

AERO ENG 5758 : Integrated Product Development

MECH ENG 5313 : Intermediate Dynamics Of Mechanical And Aerospace Systems

MECH ENG 5449 : Robotic Manipulators and Mechanisms

MECH ENG 5702 : Synthesis Of Mechanisms

In Workflow

1. **RMECHENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/21/17 2:34 pm James Drallmeier (drallmei): Approved for RMECHENG Chair
2. 04/22/17 3:52 pm Lahne Black

MECH ENG 5704 : Compliant Mechanism Design

MECH ENG 5715 : Concurrent Engineering

Requested Effective Change Date: Spring **2018** ~~2016~~

Department: Mechanical & Aerospace Engineering

Discipline: Mechanical Engineering (MECH ENG)

Course Number: 3313

Title:

Machine Dynamics

Abbreviated Course Title: Machine Dynamics

(lahne): Approved for CCC Secretary

3. 05/22/17 12:30 pm
   sraper: Approved for Engineering DSCC Chair
4. 06/30/17 8:22 am
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 11:14 am
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 08/16/17 11:29 am
   sraper: Approved for Campus Curricula Committee Chair

History

1. Oct 19, 2015 by nisbett (517.1)

Catalog Description

Motion analysis using vector methods is considered for machine elements including linkages, cams, and gears. Dynamic force analysis methods are applied to balancing, flywheels, and single and multicylinder engines.

Prerequisites

A grade of "C" or better in each of **the following:** ~~Comp Sci 1570 or Comp Sci 1970 or Comp Sci 1971 or Comp Sci 1972, Mech Eng 2360 (or Aero Eng 2360), Math 1214 (or Math 1208), Math 1215 (or Math 1221), Math 2222, and Physics 1135.~~ **Comp Sci 1570 or Comp Sci 1970 or Comp Sci 1971 or Comp Sci 1972; Mech Eng 2360 or Aero Eng 2360; Math 1214 or Math 1208; Math 1215 or Math 1221; Math 2222; Physics 1135 or Physics 1111.**

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	Yes			
Elective for Majors	No			

Justification for change:

Adding acceptable alternate course as prerequisite for non-engineering majors and transfer students.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 517

Preview Bridge

Course Inventory Change Request

Date Submitted: 04/21/17 1:46 pm

Viewing: **MECH ENG 3411 : Modeling and Analysis of Dynamic Systems**

File: 1286.3

Last approved: 10/19/15 3:34 am

Last edit: 05/16/17 9:24 am

Changes proposed by: nisbett

Programs referencing this course

MC ENG-BS: Mechanical Engineering BS

Other Courses referencing this course

In The Prerequisites:

AERO ENG 5307 : Vibrations I

AERO ENG 5309 : Engineering Acoustics I

MECH ENG 4479 : Automatic Control Of Dynamic Systems

MECH ENG 5307 : Vibrations I

MECH ENG 5309 : Engineering Acoustics I

MECH ENG 5420 : Signal Processing for Instrumentation and Control

Spring **2018** ~~2016~~

In Workflow

1. **RMECHENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/21/17 2:34 pm James Drallmeier (drallmei): Approved for RMECHENG Chair
2. 04/22/17 3:53 pm Lahne Black

Requested Effective Change Date

Department
Mechanical & Aerospace Engineering

Discipline
Mechanical Engineering (MECH ENG)

Course Number 3411

Title

Modeling and Analysis of Dynamic Systems

Abbreviated Course Title Model Analysis Dyn Sys

(lahne): Approved for CCC Secretary
3. 05/22/17 12:30 pm
sraper: Approved for Engineering DSCC Chair
4. 06/30/17 8:28 am
Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 11:15 am
Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 08/16/17 11:29 am
sraper: Approved for Campus Curricula Committee Chair

History

1. Oct 19, 2015 by nisbett (1286.1)

Catalog Description

Concepts of modeling mechanical systems as linear systems are studied and applied to hydraulic, pneumatic, and electromechanical systems. Analysis techniques described include matrix formulations, Laplace transforms, and time domain response methods.

Prerequisites

A grade of "C" or better in each of the following: ~~A grade of "C" or better in each of~~ Comp Sci 1570 or Comp Sci 1970 or Comp Sci 1971 or Comp Sci **1972;** ~~1972,~~ Mech Eng 2360 **or** ~~(or~~ Aero Eng **2360;** ~~2360),~~ Math 1214 **or** ~~(or~~ Math **1208;** ~~1208),~~ Math 1215 **or** ~~(or~~ Math **1221;** ~~1221),~~ Math **2222;** ~~2222,~~ Math **3304;** ~~3304,~~ Physics **1135 or** ~~1135,~~ Physics **1111; Physics 2135 or Physics 2111.** ~~2135.~~

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	Yes			
Elective for Majors	No			

Justification for change:

Adding acceptable alternate courses as prerequisites for non-engineering majors and transfer students.

Semesters previously offered as an experimental course

Co-Listed
Courses:

Course Reviewer
Comments

sraper (05/16/17 9:24 am): Changed effective date to Spring 2018.

Key: 1286
Preview Bridge

Course Inventory Change Request

Date Submitted: 04/21/17 4:37 pm

Viewing: **MECH ENG 4840 : Mechanical Instrumentation**

File: 2026.1

Last edit: 05/16/17 9:24 am

Changes proposed by: nisbett

Programs referencing this course

MC ENG-BS: Mechanical Engineering BS

Other Courses referencing this course

In The Prerequisites:

MECH ENG 4842 : Mechanical Engineering Systems

Requested Effective Change Date: **Spring 2018** ~~Fall 2014~~

Department

Mechanical & Aerospace Engineering

Discipline

Mechanical Engineering (MECH ENG)

Course Number: 4840

In Workflow

1. **RMECHENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/21/17 4:48 pm James Drallmeier (drallmei): Approved for RMECHENG Chair
2. 04/22/17 3:53 pm Lahne Black

Title	(lahne): Approved for CCC Secretary 3. 05/22/17 12:31 pm sraper: Approved for Engineering DSCC Chair 4. 06/30/17 8:30 am Brittany Parnell (ershenb): Approved for Pending CCC Agenda post 5. 08/16/17 11:15 am Brittany Parnell (ershenb): Approved for CCC Meeting Agenda 6. 08/16/17 11:29 am sraper: Approved for Campus Curricula Committee Chair

Mechanical Instrumentation

Abbreviated Course Title	Mechanical Instrumentatn
Catalog Description	

Theory ~~A basic course in the theory~~ and application of instrumentation to ~~typical~~ measurement problems in mechanical and aerospace engineering. Experiments employing basic devices to measure quantities such as strain, pressure, force, temperature, motion, flow, **and** sound level are performed. Accepted procedures for recording, **interpreting,** ~~interpretation,~~ and **presenting** ~~presentation of~~ experimental results are illustrated.

Prerequisites

A grade of "C" or better **in** each of **the following:** ~~Math 3304, Mech Eng 2519, Physics 2135.~~ **Math 3304; Mech Eng 2519; Physics 2135 or Physics 2111.**

Field Trip Statement

Credit Hours Total: 2	LEC: 0	LAB: 2	IND: 0	RSD: 0
Required for Majors	**Yes** ~~No~~			
Elective for Majors	No			

Justification for change:

Adding acceptable alternate course as prerequisite for non-engineering majors and transfer students.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer

Comments

drallmei (04/21/17 2:36 pm): Rollback: Keith: Something seems to have been deleted in the course description

sraper (05/16/17 9:24 am): Checked required for majors box.

Key: 2026

Preview Bridge

Course Inventory Change Request

Date Submitted: 04/21/17 1:51 pm

Viewing: **MECH ENG 5139 : Computational Fluid Dynamics**

File: 1729.1

Last edit: 08/16/17 8:43 am

Changes proposed by: nisbett

Catalog Pages referencing this course

Mechanical Engineering

Programs referencing this course

AP MATH-BS: Applied Mathematics BS

MC ENG-BS: Mechanical Engineering BS

Other Courses referencing this course

In The Catalog Description:

AERO ENG 5139 : Computational Fluid Dynamics

In The Prerequisites:

AERO ENG 6123 : Viscous Fluid Flow

AERO ENG 6135 : Turbulent Flows - Theory, Measurements and Modeling

In Workflow

1. **RMECHENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/21/17 2:36 pm James Drallmeier (drallmei): Approved for RMECHENG Chair
2. 04/22/17 3:53 pm Lahne Black

MECH ENG 6123 : Viscous Fluid Flow
MECH ENG 6135 : Turbulent Flows - Theory, Measurements and Modeling

Requested Effective Change Date: **Spring 2018** ~~Fall 2014~~

Department
Mechanical & Aerospace Engineering

Discipline
Mechanical Engineering (MECH ENG)

Course Number: 5139

Title
Computational Fluid Dynamics

Abbreviated Course Title: Computational Fluid Dyn

Catalog Description

(lahne): Approved for CCC Secretary
3. 05/22/17 12:31 pm
sraper: Approved for Engineering DSCC Chair
4. 06/30/17 8:33 am
Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 11:23 am
Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 08/16/17 11:41 am
sraper: Approved for Campus Curricula Committee Chair

Introduction to the numerical solution of the Navier-Stokes equations, by finite difference methods, in both stream function-vorticity and primitive variable formulations. Course format emphasizes student development of complete computer programs utilizing a variety of solution methods.

Prerequisites

Comp Sci 1570 or **Comp Sci** 1970 or **Comp Sci 1971 or Comp Sci 1972;** ~~1971;~~ one course in fluid mechanics.

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			
Elective for Majors	**Yes** ~~No~~			

Justification for change:

Adding MatLab as an acceptable programming prerequisite.

Semesters previously offered as an experimental course

Co-Listed Courses:

AERO ENG 5139 - Computational Fluid Dynamics

Course Reviewer

Comments

sraper (05/16/17 9:25 am): Checked elective for majors box.

Key: 1729

Preview Bridge

Course Inventory Change Request

Date Submitted: 04/21/17 1:51 pm

Viewing: **MECH ENG 5763 : Principles And Practice Of Computer Aided Design**

File: 1603.1

Last edit: 08/16/17 8:52 am

Changes proposed by: nisbett

Catalog Pages referencing this course

Information Science and Technology
Manufacturing Engineering
Mechanical Engineering

Programs referencing this course

DSCMGMT-MI: Digital Supply Chain Mgt Minor
MC ENG-BS: Mechanical Engineering BS

Other Courses referencing this course

In The Prerequisites:

MECH ENG 6663 : Advanced Digital Design and Manufacturing

Spring 2018 ~~Fall 2014~~

In Workflow

1. **RMECHENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/21/17 2:36 pm James Drallmeier (drallmei): Approved for RMECHENG Chair
2. 04/22/17 3:53 pm Lahne Black

Requested Effective Change Date

Department
Mechanical & Aerospace Engineering

Discipline
Mechanical Engineering (MECH ENG)

Course Number 5763

Title
Principles And Practice Of Computer Aided Design

Abbreviated Course Title Prin & Pract Cmp Aid Dsg

Catalog Description

(lahne): Approved for CCC Secretary
3. 05/22/17 12:31 pm
sraper: Approved for Engineering DSCC Chair
4. 06/30/17 8:37 am
Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 11:24 am
Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 08/16/17 11:41 am
sraper: Approved for Campus Curricula Committee Chair

Lectures cover the fundamentals of computer-aided design with emphasis on geometric modeling of curves, surfaces and solids, CAD/CAM data exchange, and computer graphics. In the lab session, students practice with commercial CAD/CAM systems including NX and SolidWorks to gain practical experience.

Prerequisites

Comp Sci 1570 or Comp Sci 1970 or Comp Sci **1971 or Comp Sci 1972;** ~~1971,~~ Mech Eng **2761;** ~~2761,~~ Math **2222;** ~~2222,~~ at least Junior standing.

Field Trip Statement

Credit Hours Total: 3	LEC: 2	LAB: 1	IND: 0	RSD: 0

Required for Majors: No

Elective for Majors: **Yes** ~~No~~

Justification for change:

Adding MatLab as an acceptable programming prerequisite.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

sraper (05/16/17 9:26 am): Checked elective for majors box. "at least junior standing" may need revision to current standard.

Key: 1603

Preview Bridge

Course Inventory Change Request

Date Submitted: 04/21/17 1:53 pm

Viewing: **MECH ENG 5830 : Applied Computational Methods**

File: 1579.1

Last edit: 08/16/17 8:55 am

Changes proposed by: nisbett

Programs referencing this course

AP MATH-BS: Applied Mathematics BS

MC ENG-MS: Mechanical Engineering MS

Other Courses referencing this course

In The Catalog Description:

AERO ENG 5830 : Applied Computational Methods

Requested Effective Change Date: **Spring 2018** ~~Fall 2014~~

Department

Mechanical & Aerospace Engineering

Discipline

Mechanical Engineering (MECH ENG)

In Workflow

1. **RMECHENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/21/17 2:37 pm James Drallmeier (drallmei): Approved for RMECHENG Chair
2. 04/22/17 3:53 pm Lahne Black

Course Number	5830
Title	

(lahne): Approved for CCC Secretary
3. 05/22/17 12:31 pm
sraper: Approved for Engineering DSCC Chair
4. 06/30/17 9:06 am
Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 11:25 am
Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 08/16/17 11:41 am
sraper: Approved for Campus Curricula Committee Chair

Applied Computational Methods

Abbreviated Course Title	Applied Computational Methods

Catalog Description

Detailed study of computational methods for efficient solution of selected fluids, structures, thermodynamics, and controls problems in aerospace and mechanical engineering. Besides basic numerical techniques, topics covered include gradient-based optimization and uncertainty quantification.

Prerequisites

Comp Sci 1570 or **Comp Sci** 1970 or **Comp Sci 1971 or Comp Sci 1972;** ~~1981;~~ Math 3304.

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			
Elective for Majors	**Yes** ~~No~~			

Justification for change:

Adding MatLab as an acceptable programming prerequisite. Also correcting 1981 (lab) to 1971(lecture).

Semesters previously offered as an experimental course

Co-Listed Courses:

AERO ENG 5830 - Applied Computational Methods

Course Reviewer

Comments

sraper (05/16/17 9:26 am): Checked elective for majors box.

Key: 1579

Preview Bridge

Course Inventory Change Request

New Course Proposal

Date Submitted: 07/10/17 1:18 pm

Viewing: **MET ENG 4325 : Ferrous Microstructures**

File: 4433

Last edit: 08/16/17 8:57 am

Changes proposed by: smiller

Requested Effective Change Date	Spring 2018
Department	Materials Science & Engineering
Discipline	Metallurgical Engineering (MET ENG)
Course Number	4325
Title	

In Workflow

1. **RMATSENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 07/10/17 5:46 pm Greg Hilmas (ghilmas): Approved for RMATSENG Chair
2. 07/13/17 8:09 am Brittany Parnell (ershenb):

Approved for CCC Secretary
3. 07/31/17 12:27 pm
   sraper: Approved for Engineering DSCC Chair
4. 07/31/17 1:53 pm
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 11:25 am
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 08/16/17 11:41 am
   sraper: Approved for Campus Curricula Committee Chair

Ferrous Microstructures

Abbreviated Course Title: Ferrous Microstructures

Catalog Description:

Course provides an in-depth explanation of microstructural development during solidification, thermo-mechanical processing, and heat treatment of steel. Topics

included: optical microscopy, quantitative metallography, the Fe-C phase diagram, solidification and banding, homogenization, grain size control, formation of microstructures upon heating/cooling.

Prerequisites

A grade of "C" or better in Met Eng 2110.

Field Trip Statement

Credit Hours	LEC: 1	LAB: 1	IND: 0	RSD: 0
Total: 2				
Required for Majors	No			
Elective for Majors	Yes			

Justification for new course:

Create tech elective for Met Eng majors and other interested students

Spring 2016 enrollment: 8

Spring 2017 enrollment: 9

Semesters previously offered as an experimental course

Spring 2017 and Spring 2016 as Met Eng 3001

Co-Listed Courses:

Course Reviewer Comments

Course Inventory Change Request

New Course Proposal

Date Submitted: 07/10/17 1:22 pm

Viewing: **MET ENG 6325 : Advanced Ferrous Microstructures**

File: 4434

Last edit: 08/16/17 9:08 am

Changes proposed by: smiller

Requested Effective Change Date	Spring 2018
Department	Materials Science & Engineering
Discipline	Metallurgical Engineering (MET ENG)
Course Number	6325
Title	

In Workflow

1. **RMATSENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 07/10/17 5:46 pm Greg Hilmas (ghilmas): Approved for RMATSENG Chair
2. 07/13/17 8:09 am Brittany Parnell (ershenb):

Approved for CCC Secretary
3. 07/31/17 12:28 pm
   sraper: Approved for Engineering DSCC Chair
4. 07/31/17 1:54 pm
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 11:26 am
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 08/16/17 11:41 am
   sraper: Approved for Campus Curricula Committee Chair

Advanced Ferrous Microstructures

Abbreviated Course Title: Adv Ferrous Microstruct

Catalog Description:

Course provides an in-depth explanation of microstructural development during solidification, thermo-mechanical processing, and heat treatment of steel. Topics:

microscopy, metallography, the Fe-C phase diagram, solidification, homogenization, grain size control, formation of microstructures upon heating/cooling. Term paper and presentation required.

Prerequisites

Field Trip

Statement

Credit Hours Total: 2	LEC: 1	LAB: 1	IND: 0	RSD: 0

Required for Majors: No

Elective for Majors: No

Justification for new course:

graduate level course to accompany Met 4325

Semesters previously offered as an experimental course

Spring 2016 and Spring 2017 as Met Eng 3001

Co-Listed Courses:

Course Reviewer Comments

Key: 4434

Preview Bridge

Course Inventory Change Request

Date Submitted: 05/04/17 10:06 am

Viewing: **SPANISH 4311 : Advanced Spanish Conversation**

File: 1563.8

Last approved: 06/22/15 3:46 am

Last edit: 06/06/17 9:42 am

Changes proposed by: lahne

Programs referencing this course

MUL&DIV-MI: Multiculture & Diversity Minor

Requested Effective Change Date **Spring 2018** ~~Fall 2015~~

Department

Arts, Languages, & Philosophy

Discipline

Spanish (SPANISH)

Course Number 4311

Title

In Workflow

1. **RPHILOSO Chair**
2. **CCC Secretary**
3. **Arts & Humanities DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 05/31/17 2:52 pm Audra Merfeld-Langston (audram): Approved for RPHILOSO Chair

2. 06/06/17 8:54 am
   Brittany Parnell (ershenb): Approved for CCC Secretary
3. 06/06/17 9:42 am
   Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
4. 06/30/17 9:59 am
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 11:26 am
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 08/16/17 11:43 am
   sraper: Approved for Campus Curricula Committee Chair

History

1. Sep 29, 2014 by denises (1563.1)

2. Jun 22, 2015 by denises (1563.5)

	Advanced Spanish Conversation				
Abbreviated Course Title	Adv Span Conversation				
Catalog Description	Advanced Spanish conversation and oral practice.				
Prerequisites	Any Spanish course at the 2000 or 3000 level.				
Field Trip Statement					
Credit Hours	LEC: **3** ~~2~~	LAB: 0	IND: 0	RSD: 0	
	Total: **3** ~~2~~				
Required for Majors	No				
Elective for Majors	No				
Justification for change:	This is a course for the Spanish Minor. Students taking this 2 credit course need to be granted an additional credit so they can reach the 21 credits required for the minor. In addition, all courses in the department are 3 credits.				
Semesters previously offered as an experimental course					
Co-Listed Courses:					

Course Reviewer

Comments

dewittp (06/06/17 9:42 am): Updated effective date to Spring 2018.

Key: 1563

Preview Bridge

Course Inventory Change Request

Date Submitted: 06/19/17 3:49 pm

Viewing: **TCH COM 6450 : Advanced International Technical Communication**

File: 986.3

Last approved: 10/20/14 3:35 am

Last edit: 08/16/17 9:10 am

Changes proposed by: kswenson

Programs referencing this course

TCH COM-MS: Technical Communication MS

Other Courses referencing this course

In The Catalog Description:

TCH COM 4450 : International Dimensions of Technical Communication

Requested Effective Change Date: **Spring 2018** ~~01/13/2015~~

Department

English and Technical Communication

Discipline

Technical Communication (TCH COM)

In Workflow

1. **RENGLISH Chair**
2. **CCC Secretary**
3. **Arts & Humanities DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 06/19/17 3:49 pm Kristine Swenson (kswenson): Approved for RENGLISH Chair
2. 06/21/17 10:47 am

Course Number	6450
Title	

Brittany Parnell (ershenb): Approved for CCC Secretary

3. 06/22/17 1:51 pm
   Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
4. 06/30/17 10:08 am
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 11:26 am
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 08/16/17 11:43 am
   sraper: Approved for Campus Curricula Committee Chair

History

1. Oct 20, 2014 by kswenson (986.1)

Advanced International Technical Communication	
Abbreviated Course Title	Adv International Tech Com
Catalog Description	Advanced study of international technical communication. Includes topics such as graphics, icons, symbols; user interface design; intercultural communication. ~~Requires field work at student's expense.~~Students may not earn credit for both TCH COM 4450 and TCH COM 6450.
Prerequisites	~~Graduate Standing.~~
Field Trip Statement	

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0
Total: 3				

Required for Majors	No
Elective for Majors	No
Justification for change:	Eliminated 'requires field work at student's expense' from catalog description because has not and will not be required for this course. This was raising questions and confusing students.
Semesters previously offered as an experimental course	
Co-Listed Courses:	

Course Reviewer

Comments

dewittp (06/22/17 1:51 pm): updated effective date

Key: 986

Preview Bridge

Program Change Request

Date Submitted: 03/09/17 9:21 am

Viewing: ANA&DTA-MI : Business Analytics and Data Science Minor

File: 239.9

Last approved: 02/01/16 8:42 am

Last edit: 08/16/17 9:12 am

Changes proposed by: barryf

Catalog Pages Using this Program

Information Science and Technology

Start Term **Spring 2018** ~~08/22/2016~~

Program Code

ANA&DTA-MI

Department

Business and Information Technology

Title

Program Requirements and Description

Minor in Business Analytics and Data Science

The minor in business analytics and data science requires the following 15 hours of coursework:

In Workflow

1. **RINFSCTE Chair**
2. **CCC Secretary**
3. **Social Sciences DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. kristyg

Approval Path

1. 06/26/17 3:25 pm siauk: Approved for RINFSCTE Chair
2. 06/27/17 8:46 am Brittany Parnell (ershenb): Approved for CCC Secretary
3. 06/28/17 6:36 am Barry Flachsbart (barryf): Approved for Social Sciences DSCC Chair
4. 06/28/17 3:57 pm Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 11:27 am Brittany Parnell (ershenb): Approved for CCC Meeting Agenda

6. 08/16/17 11:40 am sraper: Approved for Campus Curricula Committee Chair

History

1. Mar 17, 2015 by Barry Flachsbart (barryf)
2. Jul 28, 2015 by kleb6b
3. Jul 29, 2015 by pantaleoa
4. Jul 29, 2015 by pantaleoa
5. Feb 1, 2016 by Barry Flachsbart (barryf)

Business Analytics and Data Science Minor

IS&T 1750	Introduction to Management Information Systems	3
IS&T 3423	Database Management	3
IS&T 3420	Introduction to Data Science and Management	3
Two courses from the following list:		**6**
IS&T 4450	**Introduction to Information Visualization**	
IS&T 5420	**Business Analytics and Data Science**	
IS&T 5520	**Data Methodologies in Python**	

~~And two of the following:IS&T 4450 Introduction to Information Visualization IS&T 5420 Business Analytics and Data ScienceIS&T 5001 Data Methodologies in Python~~

Justification for request

Trying to Fix Formatting.

Also update IS&T 5001 to IS&T 5520 (new number).

Supporting Documents

Course Reviewer Comments

ershenb (08/16/17 9:12 am): updated effective date to Spring 2018.

Key: 239
Preview Bridge

Date Submitted: 06/22/17 12:54 pm

Viewing: CP ENG-BS : Computer Engineering BS

File: 153.45

Last approved: 12/01/16 3:47 pm

Last edit: 07/20/17 12:07 pm

Changes proposed by: stanleyj

Catalog Pages Using this Program

Computer Engineering

Start Term **Spring 2018** ~~Fall 2017~~

Program Code

CP ENG-BS

Department

Electrical and Computer Engineering

Title

Program Requirements and Description

Bachelor of Science Computer Engineering[1]

Entering freshmen desiring to study Computer Engineering will be admitted to the Freshman Engineering Program. They will be permitted to state a Computer Engineering preference, which will be used as a consideration for available freshman departmental scholarships. The focus of the Freshman Engineering program is on enhanced advising and career counseling, with the goal of providing to the student the information necessary to make an informed decision regarding the choice of a major.

In Workflow

1. **RELECENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. FS Meeting Agenda
8. Faculty Senate Chair
9. Registrar
10. kristyg

Approval Path

1. 06/22/17 3:19 pm Daryl Beetner (daryl): Approved for RELECENG Chair
2. 06/23/17 9:08 am Brittany Parnell (ershenb): Approved for CCC Secretary
3. 07/20/17 11:28 am sraper: Approved for Engineering DSCC Chair
4. 07/20/17 1:23 pm Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 11:43 am Brittany Parnell (ershenb): Approved for CCC Meeting Agenda

For the Bachelor of Science degree in Computer **Engineering,** ~~Engineering~~ a minimum of 128 credit hours is required. These requirements are in addition to credit received for algebra, trigonometry, and basic ROTC courses. An average of at least two grade points per credit hour must be attained. At least two grade points per credit hour must also be attained in all courses taken in Computer Engineering.

Each student's program of study must contain a minimum of 21 credit hours of course work in general education and must be chosen according to the following rules:

1. All students are required to take one American history course, one economics course, one humanities course, and . The history course is to be selected from HISTORY 1200, HISTORY 1300, HISTORY 1310, or **POL SCI 1200**. ~~POL SCI 1200.~~ The economics course may be either **ECON 1100** ~~ECON 1100~~ or ECON 1200. The humanities course must be selected from the approved lists for art, English, foreign languages, music, philosophy, speech and media studies, or theater.
2. Depth requirement. Three credit hours must be taken in humanities or social sciences at the 2000 level or above and must be selected from the approved list. This course must have as a prerequisite one of the humanities or social sciences courses already taken. Foreign language courses numbered 1180 will be considered to satisfy this requirement. Students may receive humanities credit for foreign language courses in their native tongue only if the course is at the 4000 level. All courses taken to satisfy the depth requirement must be taken after graduating from high school.
3. The remaining two courses are to be chosen from the list of approved humanities/social sciences courses and may include one communications course in addition to ENGLISH 1120.
4. Any specific departmental requirements in the general studies area must be satisfied.
5. Special topics and special problems and honors seminars are allowed only by petition to and approval by the student's department chairman.

The Computer Engineering program at Missouri S&T is characterized by its focus on the scientific basics of engineering and its innovative application; indeed, the underlying theme of this educational program is the application of the scientific basics to engineering practice through attention to problems and needs of the public. The necessary interrelations among the various topics, the engineering disciplines, and the other professions as they naturally come together in the solution of real world problems are emphasized as research, analysis, synthesis, and design. These interrelations are presented and discussed through classroom and laboratory instruction.

Free Electives Footnote:

Each student is required to take three hours of free electives in consultation with his/her academic advisor. Credits which do not count towards this requirement are deficiency courses (such as algebra and trigonometry), and extra credits in required courses. Any courses outside of engineering and science must be at least three credit hours.

Freshman Year			
First Semester	**Credits**	**Second Semester**	**Credits**
FR ENG 1100[2]	1	MECH ENG 1720	3
MATH 1214[3]	4	MATH 1215[3]	4
CHEM 1310	4	PHYSICS 1135[3,4]	4
CHEM 1319	1	ECON 1100 or 1200	3

History

1. Aug 6, 2014 by Stanley (stanleyj)
2. Aug 13, 2014 by pantaleoa
3. Sep 21, 2015 by kleb6b
4. Apr 25, 2016 by Stanley (stanleyj)
5. Dec 1, 2016 by Stanley (stanleyj)

HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3	Elective-Hum or Soc (any level)[5]	3
ENGLISH 1120	3		
	16		17

Sophomore Year

First Semester	Credits	Second Semester	Credits
ELEC ENG 2100[3,6,7]	3	COMP ENG 2210[3,6,8]	3
ELEC ENG 2101[3,6]	1	COMP ENG 2211[3,6]	1
MATH 2222[3]	4	ELEC ENG 2120[3,7,9]	3
COMP SCI 1570[3]	3	MATH 3304[3]	3
COMP SCI 1580[3]	1	~~COMP SCI 1510[3]~~	~~3~~
PHYSICS 2135[3,4]	4	COMP SCI 1200[3]	3
		COMP SCI 1575	**3**
	16		16

Junior Year

First Semester	Credits	Second Semester	Credits
COMP ENG 3110	3	COMP ENG Elective A[3,14]	3
COMP ENG 3150	3	ELEC ENG 3410[3,6,9]	3
COMP ENG 3151[3,6,8]	1	COMP SCI 3800 or 2500[3]	3
ELEC ENG 2200[3,6,7]	3	STAT 3117[12]	3
ELEC ENG 2201[3,6,7]	1	Communication Elective [13]	3
Mathematics Elective[10]	3		
SP&M S 1185[13]	3		
	17		15

Senior Year

First Semester	Credits	Second Semester	Credits
COMP ENG 5410 or COMP SCI 5600[3]	3	COMP ENG Elective D[3,15,16]	3
COMP ENG Elective C[3,15,16]	3	COMP ENG Elective E[3,15,16]	3
COMP ENG 4096[3,17]	1	COMP ENG 4097[3,17]	3
Elective-Hum or Soc (any level)[5]	3	Elective-Hum or Soc (upper level)[5]	3
Engineering Science Elective [11]	3	Free Elective[18]	3
COMP ENG Elective B[3,19]	3		
	16		15
Total Credits: 128			

Notes: Student must satisfy the common engineering freshman year requirements and be admitted into the department.

1	The minimum number of hours required for a degree in Computer Engineering is 128.
2	Students that transfer to Missouri S&T after their freshman year are not required to enroll in Freshman Engineering Seminars.
3	A minimum grade of "C" must be attained in MATH 1214, MATH 1215, MATH 2222, and MATH 3304, PHYSICS 1135 and PHYSICS 2135 (or their equivalents), COMP SCI 1570, COMP SCI 1580, COMP SCI 1575, COMP SCI 1200, COMP SCI 2500 or COMP SCI 3800, COMP ENG 2210, COMP ENG 2211, COMP ENG 3150, COMP ENG 3551, COMP ENG 3110, COMP ENG 5410 or COMP SCI 5600, COMP ENG 4096, and ELEC ENG 2100, ELEC ENG 2101, ELEC ENG 2120, ELEC ENG 2200, ELEC ENG 2201, ELEC ENG 3410, and ELEC ENG 3411, and the COMP ENG electives A, B, C, D and E. Also, students may not enroll in other courses that use these courses as prerequisites until the minimum grade of "C" is attained.
4	Students may take PHYSICS 1111 and PHYSICS 1119 in place of PHYSICS 1135. Students may take PHYSICS 2111 and PHYSICS 2119 in place of PHYSICS 2135.
5	All electives must be approved by the student's advisor. Students must comply with the general education requirements with respect to selection and depth of study. These requirements are specified in the current catalog.
6	Students who drop a lecture course prior to the deadline to drop a class must also drop the corequisite lab course.
7	Students must earn a passing grade on the ELEC ENG Advancement Exam I (associated with ELEC ENG 2100) before they enroll in ELEC ENG 2120 or ELEC ENG 2200 and ELEC ENG 2201.
8	Students must earn a passing grade on the COMP ENG Advancement Exam (associated with COMP ENG 2210) before they enroll in any course with COMP ENG 2210 and COMP ENG 2211 as prerequisites.
9	Students must earn a passing grade on the ELEC ENG Advancement Exam II (associated with ELEC ENG 2120) before they enroll in ELEC ENG 3410 and ELEC ENG 3411.
10	Students must take one of the following courses: MATH 3103, MATH 3108, MATH 3109, MATH 5302, MATH 5603, MATH 5105, MATH 5106, MATH 5107, MATH 5108, MATH 4209, MATH 4211, MATH 5215, MATH 5222, MATH 5325, MATH 4530, MATH 5737, MATH 5351, MATH 5154, MATH 4096, MATH 5483, MATH 5585, STAT 5644, STAT 5346, STAT 5353.
11	Students must take MECH ENG 2340, MECH ENG 2519, MECH ENG 2527, PHYSICS 2311, PHYSICS 2401, CHEM 2210, BIO SCI 2213, or BIO SCI 2223. The following pairs of course are substitutions for any single course: CIV ENG 2200 and MECH ENG 2350, PHYSICS 2305 and PHYSICS 4311, PHYSICS 2305 and CER ENG 4240, or PHYSICS 2305 and NUC ENG 3205.
12	Students may replace STAT 3117 with STAT 3115 or STAT 5643.
13	Student must take English 3560 or English 1160. Students may replace SpMS 1185 with the ROTC sequence of Mil Army 4250 and 4500 or Mil Air 4110 and 4120
14	Comp Eng Elective A must be a 4000 or 5000-level Comp Eng, Elec Eng, or Comp Sci course with at least a 3-hour lecture component. This normally includes all Comp Eng and Elec Eng 4000 or 5000-level courses except Comp Eng or Elec Eng 4000, 4099, 4096, and 4097 or Comp Sci 5000, 4010, 5600, and 4099.
15	Comp Eng Electives C, D, and E must be 3000, 4000 or 5000-level courses from an approved list of science, mathematics, and engineering courses. In particular, this list includes all 3000, 4000 or 5000-level Comp Eng,

	Elec Eng and Comp Sci courses except required courses in Comp Eng, Elec Eng, and Comp Sci and except Comp Eng 4096 and 4097, Elec Eng 2800, 1002, 1003, 4096, and 4097, and Comp Sci 2002 and 4600/5600). Comp Eng Electives C, D, and E must include at least six hours of engineering or computer science courses.
[16]	COMP ENG Electives C, D, and E cannot include more than three hours of COMP ENG 4000, COMP ENG 4099, ELEC ENG 4000, or ELEC ENG 4099.
[17]	Students pursuing dual degrees in COMP ENG and ELEC ENG may take either COMP ENG 4096 or ELEC ENG 4096 and COMP ENG 4097 or ELEC ENG 4097. Students may not receive credit for both COMP ENG 4096 and ELEC ENG 4096 or COMP ENG 4097 and ELEC ENG 4097 in the same degree program.
[18]	Students are required to take at least three credit hours. Elec Eng 2800 level, ELEC ENG 4096, ELEC ENG 4097, COMP ENG 4096 and COMP ENG 4097 may not be used for free electives. No more than one credit hour of COMP ENG 3002 or ELEC ENG 3002 may be applied to the BS degree for free electives.
[19]	Comp Eng Elective B must be a 4000 or 5000 level COMP ENG course with at least a 3-hour lecture component, excluding COMP ENG 4096 and COMP ENG 4097.

Emphasis Areas for Computer Engineering

Note: The following emphasis areas identify courses from which a student may opt to develop a specific emphasis. It is not required that students obtain an emphasis specialty within computer engineering.

Computational Intelligence

Highly Recommended		
COMP ENG 5310	Computational Intelligence	3
ELEC ENG 5370	Introduction to Neural Networks and Applications	3
COMP ENG 6310	Markov Decision Processes	3
Suggested		
ELEC ENG 5330	Fuzzy Logic Control	3
COMP ENG 5450	Digital Image Processing	3
COMP ENG 5460	Machine Vision	3

Computer Architecture and Embedded Systems

Highly Recommended		
COMP ENG 5110	Principles of Computer Architecture	3
COMP ENG 5120	Digital Computer Design	3
COMP ENG 5151	Digital Systems Design Laboratory	3
COMP ENG 5160	Embedded Processor System Design	3
COMP ENG 5170	Real-Time Systems	3
Suggested		
COMP ENG 5610	Real-Time Digital Signal Processing	3

COMP ENG 5130	Advanced Microcomputer System Design	3
ELEC ENG 3100	Electronics I	3
COMP SCI 3100	Software Engineering I	3

Integrated Circuits and Logic Design

Highly Recommended		
COMP ENG 2210	Introduction to Digital Logic	3
COMP ENG 5210	Introduction To VLSI Design	3
COMP ENG 5220	Digital System Modeling	3
COMP ENG 6210	Digital Logic	3
Suggested		
ELEC ENG 3100	Electronics I	3
COMP ENG 5110	Principles of Computer Architecture	3
COMP ENG 5151	Digital Systems Design Laboratory	3
COMP ENG 5120	Digital Computer Design	3
COMP ENG 5130	Advanced Microcomputer System Design	3
COMP ENG 5510	Fault-Tolerant Digital Systems	3

Networking, Security, and Dependability

Highly Recommended		
COMP ENG 5420	Introduction to Network Security	3
COMP ENG 5430	Wireless Networks	3
COMP ENG 6440	Network Performance Analysis	3
COMP ENG 6510	Resilient Networks	3
Suggested		
COMP ENG 5510	Fault-Tolerant Digital Systems	3

Justification for request

Comp Sci 1510 - Data Structures changed course number to Comp Sci 1575 - Data Structures.

Supporting Documents

Course Reviewer Comments

ershenb (07/20/17 12:07 pm): .

Key: 153

Preview Bridge

Date Submitted: 05/01/17 12:56 pm

Viewing: TCH COM-BS : Technical Communication BS

File: 132.7

Last approved: 07/21/15 3:25 pm

Last edit: 08/16/17 9:34 am

Changes proposed by: kswenson

Catalog Pages Using this Program

Technical Communication

Start Term Fall **2018** ~~2015~~

Program Code

TCH COM-BS

Department

English and Technical Communication

Title

Program Requirements and Description

Bachelor of Science
Technical Communication

The technical communication degree requires 33 credit hours of core courses: ENGLISH 2410 , TCH COM 2540 (or ENGLISH 2540), TCH COM 2560 (or ENGLISH 2560), TCH COM 5620, TCH COM 3440, TCH COM 4410, and five additional courses from the following list: ENGLISH 3560, ENGLISH 3302, TCH COM 3001, TCH COM 3010, TCH COM 5510, TCH COM 4550, TCH COM 5610, TCH COM 4085, TCH COM 5530,

In Workflow

1. **RENGLISH Chair**
2. **CCC Secretary**
3. **Arts & Humanities DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. kristyg

Approval Path

1. 05/01/17 12:58 pm Kristine Swenson (kswenson): Approved for RENGLISH Chair
2. 05/10/17 12:29 pm Lahne Black (lahne): Approved for CCC Secretary
3. 05/11/17 2:37 pm Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
4. 06/30/17 10:14 am Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 08/16/17 11:28 am Brittany Parnell (ershenb):

TCH COM 5560, TCH COM 4520, TCH COM 4450. It also requires 42 hours of general education courses, 36 hours of interdisciplinary courses (see note below), and 15 hours of free electives, for a total of 126 hours. Specific requirements for the bachelor's degree are outlined in the sample program listed below.

Approved for CCC Meeting Agenda
6. 08/16/17 11:43 am sraper: Approved for Campus Curricula Committee Chair

History

1. Apr 23, 2014 by Kristine Swenson (kswenson)
2. Aug 4, 2014 by Kristine Swenson (kswenson)
3. Jul 21, 2015 by pantaleoa

Technical Communication BS

Freshman Year			
First Semester	**Credits**	**Second Semester**	**Credits**
ENGLISH 1120	3	TCH COM 1600	3
MATH 1140, or 1110, or 1103	3	BIO SCI 1113, or 2223, or 2233, or 2263	3
PSYCH 1101	3	HISTORY 1300, or 1310, or 1100, or 1200	3
Interdisciplinary Course[1]	3	Interdisciplinary Course[1]	3
Humanities, Art, Music, Theater	3	ECON 1100	3
	15		15
Sophomore Year			
First Semester	**Credits**	**Second Semester**	**Credits**
SP&M S 1185	3	Humanities, Art, Music, Theater	3
English Literature	3	POL SCI 1200	3
TCH COM 2540	3	TCH COM 2560	3
ENGLISH 2410	3	TCH COM Elective	3
Interdisciplinary Course[1]	3	Chemistry, Geology, Physics	3
		Interdisciplinary Course[1]	3
	15		18
Junior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
Math/Statistics	3	TCH COM 5620	3

TCH COM 3440	3	TCH COM Elective	3
Interdisciplinary Course[1]	3	TCH COM Elective	3
Interdisciplinary Course[1]	3	Interdisciplinary Course[1]	3
Interdisciplinary Course[1]	3	Interdisciplinary Course[1]	3
		Free Elective	3
	15		18
Senior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
TCH COM Elective	3	TCH COM 4410	3
Interdisciplinary Course[1]	3	TCH COM Elective	3
Interdisciplinary Course[1]	3	Interdisciplinary Course[1]	3
Free Elective	3	Free Elective	3
Free Elective	3	Free Elective	3
	15		15
Total Credits: 126			

[1] In consultation with his or her advisor, the student will select 36 hours of interdisciplinary courses from only two of the areas listed below, with no fewer than 15 credit hours per area: biological sciences, business, chemistry, computer science, economics, education, engineering management, English, finance, one foreign language, geology, history, information science and technology, management and information systems, mathematics, philosophy, physics, political science, psychology, speech and media studies, statistics, any area of engineering. At least 12 of the 36 hours must come from courses numbered 2000-level or above. The student's course selections must be approved by the department of English and technical communication's technical communication committee.

Justification for request

We're expanding the possible math requirements to accommodate different students' emphases and career goals.

Supporting Documents

Course Reviewer Comments

ershenb (08/16/17 9:34 am): updated Start Term to Fall 2018.

Experimental Course

Viewing: **ELEC ENG 6001.004 : Adaptive Control**

File: 4430.8

Last approved: 08/16/17 1:31 pm

Last edit: 08/16/17 11:30 am

History

1. Aug 16, 2017 by martins

Requested Effective Change Date	Spring 2018
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	6001
Topic ID	004
Experimental Title Adaptive Control	
Experimental Abbreviated Course Title	Adaptive Control
Instructors	Dr. Jagannathan Sarangapani

Experimental Catalog Description

Intro to adaptive control, Lypunov stability, positive real and strictly positive real, Kalman-Yukabovich lemma, system identification, direct/indirect adaptive control, adaptive observers, adaptive control design, nonlinear adaptive design tools-adaptive control with multiple models, adaptive neural network control, decentralized adaptive control design.

Prerequisites

Elec Eng 6300.

Field Trip Statement

N/A

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0
Total: 3				

Justification for change:

Semester(s) previously taught

Co-Listed Courses:

Course Reviewer Comments

Key: 4430

Preview Bridge

Experimental Course

Viewing: **ELEC ENG 6001.005 : High Frequency Sensors and Sensing Systems**

File: 4429.4

Last approved: 08/16/17 1:31 pm

Last edit: 07/20/17 2:19 pm

History

1. Aug 16, 2017 by martins

Requested Effective Change Date	Spring 2018
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	6001
Topic ID	005
Experimental Title	High Frequency Sensors and Sensing Systems
Experimental Abbreviated Course Title	High Frequency Sensors
Instructors	Dr. Kristen Donnell

Experimental Catalog Description

Topics include basics of sensing and sensor systems, wireless sensor networks, embedded sensing, modulated scatterer technique, sensing approaches based on RFID, frequency selective surfaces, and coaxial transmission lines. Other topics may include magnetic sensors, capacitive and inductive sensors, and optical sensors.

Prerequisites

Elec Eng 3600 or equivalent undergraduate electromagnetics course.

Field Trip Statement

N/A

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0

Total: 3

Justification for change:

Semester(s) previously taught

None as Elec Eng 6001

Co-Listed Courses:

Course Reviewer Comments

Key: 4429

Preview Bridge

Experimental Course

Viewing: **EXP ENG 6001.003 : Experimental Techniques for Ultra High Velocity Impact**

File: 4431.3

Last approved: 08/16/17 1:31 pm

Last edit: 08/16/17 9:57 am

History

1. Aug 16, 2017 by Paul Worsey (pworsey)

Requested Effective Change Date	Spring 2018
Department	Mining & Nuclear Engineering
Discipline	Explosives Engineering (EXP ENG)
Course Number	6001
Topic ID	003
Experimental Title	Experimental Techniques for Ultra High Velocity Impact
Experimental Abbreviated Course Title	Ultra High Vel Impact
Instructors	Vilem Petr

Experimental Catalog Description

This course offers participants the opportunity to develop a fundamental knowledge of the principles of ultra-high-velocity impact and current experimental techniques for capturing such phenomena. The course will overview ballistic theory and impact; metallurgical observations; energy partitioning and engineering considerations in the hypervelocity regime.

Prerequisites

Field Trip
Statement

Credit Hours	LEC: 2	LAB: 1	IND: 0	RSD: 0
Total: 3				

Justification for change:

Semester(s) previously taught

Co-Listed Courses:

Course Reviewer Comments

Key: 4431
Preview Bridge

Experimental Course

Viewing: **MS&E 6001.001 : Advanced Chemistry of Construction Materials**

File: 4432.6

Last approved: 08/16/17 1:31 pm

Last edit: 08/16/17 11:43 am

History

1. Aug 16, 2017 by smiller

Requested Effective Change Date	Spring 2018
Department	Materials Science & Engineering
Discipline	Materials Science & Eng (MS&E)
Course Number	6001
Topic ID	001
Experimental Title	Advanced Chemistry of Construction Materials
Experimental Abbreviated Course Title	Adv Constr Mat Chem
Instructors	Aditya Kumar

Experimental Catalog Description

Advanced characterization and analytical methods for developing composition-microstructure-property relationships in construction materials. Term paper and a presentation on a topic relevant to the course are required.

Prerequisites

Field Trip Statement

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0
Total: 3				

Justification for change:

Semester(s) previously taught

none

Co-Listed Courses:

Course Reviewer Comments

Key: 4432

Preview Bridge

Experimental Course

Viewing: **PET ENG 4001.002 : Petroleum Engineering Applications of MATLAB**

File: 4436.6

Last approved: 08/16/17 1:31 pm

Last edit: 08/08/17 10:49 am

History

1. Aug 16, 2017 by reflori

Requested Effective Change Date	Fall 2017
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Petroleum Engineering (PET ENG)
Course Number	4001
Topic ID	002
Experimental Title	Petroleum Engineering Applications of MATLAB
Experimental Abbreviated Course Title	Pet Eng Applic MATLAB
Instructors	Ralph Flori

Experimental Catalog Description

Use of MATLAB for modeling, solving and simulating Petroleum Engineering problems. Coverage of a wide variety of operations and functions in MATLAB while solving many kinds of Petroleum Engineering drilling, production, reservoir, geomechanical and other problems.

Prerequisites

Pet Eng 3520.

Field Trip Statement

Credit Hours	LEC: 2	LAB: 1	IND: 0	RSD: 0
Total: 3				

Justification for change:

Semester(s) previously taught

New course.

Co-Listed Courses:

Course Reviewer Comments

Key: 4436

Preview Bridge

Experimental Course

Viewing: **PET ENG 6001.008 : Advanced Petroleum Engineering Applications with MATLAB**

History
1. Aug 16, 2017 by reflori

File: 4437.5
Last approved: 08/16/17 1:31 pm
Last edit: 08/08/17 10:50 am

Requested Effective Change Date	Fall 2017
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Petroleum Engineering (PET ENG)
Course Number	6001
Topic ID	008
Experimental Title	Advanced Petroleum Engineering Applications with MATLAB
Experimental Abbreviated Course Title	Adv Pet Eng Appl MATLAB
Instructors	Ralph E Flori
Experimental Catalog Description	Use of MATLAB for modeling, solving and simulating advanced, high level Petroleum Engineering problems. Coverage of a wide variety of operations and functions in MATLAB while solving many kinds of Petroleum Engineering drilling, production, reservoir, geomechanical and other advanced problems.
Prerequisites	Pet Eng 3520.
Field Trip Statement	
Credit Hours	LEC: 2 LAB: 1 IND: 0 RSD: 0 Total: 3
Justification for change:	
Semester(s) previously taught	New course, never before offered.
Co-Listed Courses:	
Course Reviewer Comments	

Key: 4437
Preview Bridge

Experimental Course

Viewing: **POL SCI 3001.002 : Policy for Science, Technology, and Innovation**

File: 4427.4

Last approved: 08/16/17 1:31 pm

Last edit: 05/30/17 7:45 pm

History

1. Aug 16, 2017 by sfogg

Requested Effective Change Date	Spring 2018
Department	History and Political Science
Discipline	Political Science (POL SCI)
Course Number	3001
Topic ID	002
Experimental Title	Policy for Science, Technology, and Innovation
Experimental Abbreviated Course Title	Sci Tech Policy
Instructors	Alanna Krolikowski

Experimental Catalog Description

Do Google, Airbus, and Samsung owe their success to the wisdom and foresight of government bureaucrats? This course explores whether and how public policy can foster the advancement of science, technology, and innovation. The course compares how national innovation systems have evolved and function in U.S., European, and East Asian contexts.

Prerequisites

None

Field Trip Statement

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0
Total: 3				

Justification for change:

Semester(s) previously taught

None

Co-Listed Courses:

Course Reviewer Comments

Key: 4427

Preview Bridge

Experimental Course

Viewing: **STAT 6001.004 : Foundations of Statistical Learning II**

File: 4435.4

Last approved: 08/16/17 1:31 pm

Last edit: 07/26/17 8:26 am

History

1. Aug 16, 2017 by Ilene Morgan (imorgan)

Requested Effective Change Date	Spring 2018
Department	Mathematics & Statistics
Discipline	Statistics (STAT)
Course Number	6001
Topic ID	004
Experimental Title	Foundations of Statistical Learning II
Experimental Abbreviated Course Title	Statistical Learning II
Instructors	Prof. Robert Paige

Experimental Catalog Description

Statistical learning techniques for Data Mining and analysis of Big Data. Topics include reproducing kernel Hilbert spaces, wavelets, PRIM, hierarchical mixtures of experts, ensemble learning, clustering, topological data analysis, self-organizing maps, principal surfaces, independent components, projection pursuit, manifold learning and graphical models.

Prerequisites

Math 2222; Math 3108, Math 5108, or Math 6108; Stat 3111, Stat 3113, Stat 3115, Stat 3117, or Stat 5643.

Field Trip Statement

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0
Total: 3				

Justification for change:

Semester(s) previously taught

None

Co-Listed Courses:

Course Reviewer Comments

Key: 4435

Preview Bridge