Campus Curricula Committee Meeting Agenda
April 13, 2021
8:00am - 9:15am, Zoom
(For Faculty Senate Meeting of April 29, 2021)

Review of submitted Course Change forms:

File: 942.6 ARCH ENG 4800 : Principles of HVAC I
File: 437.4 BIO SCI 1213 : Principles of Biology
File: 1399.1 BIO SCI 5313 : Pathogenic Microbiology
File: 2618.1 CER ENG 4310 : Ceramic Processing
File: 1801.6 CHEM ENG 3100 : Chemical Engineering Fluid Flow
File: 2306.6 CHEM ENG 3110 : Chemical Engineering Heat Transfer
File: 4279.25 CHEM ENG 3111 : Numerical Computing in Chemical and Biochemical Engineering
File: 2310.5 CHEM ENG 3130 : Staged Mass Transfer
File: 1526.6 CHEM ENG 3140 : Continuous Mass Transfer
File: 1038.10 CHEM ENG 3150 : Chemical Engineering Reactor Design
File: 1479.4 CHEM ENG 3160 : Molecular Chemical Engineering
File: 4285.16 CHEM ENG 4091 : Chemical Process Design I
File: 1083.1 CHEM ENG 4096 : Chemical Engineering Economics
File: 862.20 CHEM ENG 4097 : Chemical Process Design II
File: 1394.1 CHEM ENG 4100 : Chemical Engineering Laboratory I
File: 2072.8 CHEM ENG 4110 : Chemical Engineering Process Dynamics And Control
File: 383.1 CHEM ENG 4120 : Process Dynamics And Control Laboratory
File: 792.10 CHEM ENG 4130 : Chemical Engineering Laboratory II
File: 797.13 CHEM ENG 4220 : Biochemical Reactor Laboratory
File: 4252.5 CHEM ENG 4230 : Bioprocess Safety
File: 4310.4 CHEM ENG 5220 : Intermediate Engineering Thermodynamics
File: 2048.2 CHEM ENG 5305 : Hazardous Materials Management
File: 1392.7 COMP ENG 4096 : Computer Engineering Senior Project I
File: 4752 COMP SCI 6407 : Internet of Things with Data Science
File: 4797 EDUC 3298 : Teacher Field Experience III
File: 1839.8 EDUC 3340 : Assessment of Student Learning
File: 2214.13 ELEC ENG 4096 : Electrical Engineering Senior Project I
File: 1840.1 ELEC ENG 5820 : Introduction to Neural Networks and Applications
File: 4796 GEOPHYS 6221 : Advanced Geophysical Data Analysis
File: 2030.1 IS&T 4257 : Global Digital Economy
File: 765.5 MECH ENG 2519 : Thermodynamics
File: 1968.8 MUSIC 3251 : From the Church to the Palace: Music of the Middle Ages and Renaissance

File: 1656.7 MUSIC 3252 : Kings, Queens, and Guillotines: History of Music in the Enlightenment and Beyond
File: 2294.1 NUC ENG 4257 : Two-phase Flow in Energy Systems – I
File: 453.1 NUC ENG 4281 : Probabilistic Risk Assessment
File: 595.1 NUC ENG 4428 : Reactor Laboratory I
File: 1601.1 NUC ENG 5281 : Introduction to Probabilistic Risk Assessment
File: 617.1 NUC ENG 5428 : Reactor Laboratory I
File: 1652.1 NUC ENG 5438 : Reactor Laboratory II
File: 4725.15 PSYCH 4340 : Assessment of Student Learning
File: 4359.10 PSYCH 6602 : Employee Affect and Behavior
File: 4081.6 PSYCH 6702 : Personnel Selection
File: 484.5 SYS ENG 5212 : Introduction to Neural Networks and Applications

Review of submitted Program Change forms:
File: 142.52 AP MATH-BS : Applied Mathematics BS
File: 150.82 CH ENG-BS : Chemical Engineering BS
File: 157.29 HIST-BA : History BA
File: 86.46 MC ENG-BS : Mechanical Engineering BS
File: 192.43 PSYCH-BA : Psychology BA
File: 193.44 PSYCH-BS : Psychology BS

Review of submitted Certificate forms:
File: 334.1 PRJ MGT-CT : Project Management CT
File: 305.5 PSYMTRP-CT : Statistical Methods Psych CT

Review of submitted Experimental Course forms:
File: 4785 CHEM ENG 5001.014 : Applications of Computational Fluid Dynamics
File: 4787 CHEM ENG 5001.016 : Drug and Gene Delivery Systems
File: 4786 COMP SCI 4001.004 : Internet Services
File: 4799 GEO ENG 6001.006 : Advanced Remote Sensing Methods in Hydrology
File: 4795 MUSIC 2001.005 : Music and the World Wars
File: 4791 SPANISH 4001.001 : Literature, Science, and Technology in Contemporary Spanish-Speaking Cultures
File: 4798 STAT 4001.001 : Introduction to Statistical Data Science
File: 4793 TCH COM 5001.003 : AI and Smart Technology Communication

Review of submitted Name Change forms:
5 : School of Earth and Minerals
6 : School of Earth and Minerals

Course Change Request

Date Submitted: 03/08/21 4:08 pm

Viewing: ARCH ENG 4800 : Principles of HVAC I

File: 942.6

Last approved: 10/12/20 6:01 am

Last edit: 03/12/21 12:04 pm

Changes proposed by: seelyj

Programs referencing this course

ARC ENG-BS: Architectural Engineering BS

BLD SYS-CT: Building Systems Engineering CT

Requested Effective Change Date	**Spring 2022** ~~Fall 2018~~
Department	Civil, Architectural, and Environmental Engineering
Discipline	Architectural Engineering (ARCH ENG)
Course Number	4800
Title	Principles of HVAC I
Abbreviated Course Title	Principles of HVAC I

Catalog Description

In Workflow

1. **RCIVILEN 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/12/21 11:55 am
   Joel Burken (burken): Approved for RCIVILEN Chair
2. 03/12/21 12:04 pm
   Marita Tibbetts (tibbettsmg):

Approved for CCC Secretary
3. 03/18/21 8:14 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Jul 9, 2018 by baur (942.1)
2. Oct 12, 2020 by tibbettsmg (942.5)

Heating, ventilating, and air conditioning principles related to the heat loss and heat gain calculations for commercial buildings. Calculations will be performed manually and using current computer software. Analysis and specification of the building envelope components, with an emphasis on improving energy efficiency by reducing heating and cooling loads

Prerequisites

Mech Eng 2527 and **preceded or accompanied by** Civ Eng 3330.

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:

Currently CE 3330 Fluid Mechanics is a prerequisite for ArchE 4800. The instructor shared that he does not get into any fluid mechanics material until the last few weeks of the semester, so it was recommended that CE 3330 be made a co-requisite for ArchE 4800.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 942

Preview Bridge

Course Change Request

Date Submitted: 03/10/21 11:17 am

Viewing: **BIO SCI 1213 : Principles of Biology**

File: 437.4

Last approved: 01/13/17 3:15 am

Last edit: 03/12/21 12:24 pm

Changes proposed by: shannonk

Programs referencing this course

PRE-MED-MI: Pre-Medicine Minor
BIO SC-BA: Biological Sciences BA
BIO SC-BS: Biological Sciences BS
PROPOSED: Computational Health Minor
PROPOSED: Biological Sciences BS with Emphasis area in Medical Laboratory Scientist
GEOL-MI: Geology Minor

Other Courses referencing this course

In The Prerequisites:

BIO SCI 1219 : General Biology Lab
BIO SCI 2243 : Sleep: Function and Dysfunction
BIO SCI 2252 : Vegetation of the Ozarks
BIO SCI 2263 : Ecology
BIO SCI 2333 : Nutrition
BIO SCI 2372 : Issues in Public Health
BIO SCI 2383 : Plant Biology
BIO SCI 3333 : Human Anatomy and Physiology I
BIO SCI 3343 : Human Anatomy and Physiology II

In Workflow

1. **RBIOLSCI 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/12/21 12:17 pm
   David Duvernell (duvernelld): Approved for RBIOLSCI Chair
2. 03/12/21 12:25 pm
   Marita Tibbetts (tibbettsmg):

BIO SCI 5323 : Bioinformatics
COMP SCI 5700 : Bioinformatics

Approved for CCC Secretary
3. 03/19/21 12:48 pm
Katie Shannon (shannonk): Approved for Sciences DSCC Chair

Requested Effective Change Date	**Spring 2022** ~~08/14/2017~~
Department	Biological Sciences
Discipline	Biological Sciences (BIO SCI)
Course Number	1213
Title	Principles of Biology
Abbreviated Course Title	Principles of Biology

History
1. Jan 13, 2017 by shannonk (437.1)

Catalog Description

This course will investigate biological concepts including ~~A comprehensive study of~~ the **chemical basis for life,** ~~general principles of~~ the **structure** ~~biology of plants, animals,~~ and **function of molecules** ~~protists including population biology~~ and **cells, cellular metabolism and enzyme activity, bioenergetics, cellular reproduction and communication, genetics, evolution and the scientific process.** ~~regulation mechanisms. An in-depth study of the fundamental principles governing all living organisms from the molecular to the populationlevel.Required for Biological Sciencesmajors.~~Cannot also receive credit for Bio Sci 1113.

Prerequisites
Biological Science majors only.

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:

Instructor and Chair agree that the new description better fits what is taught in the course.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 437

Preview Bridge

Course Change Request

Date Submitted: 02/08/21 12:25 pm

Viewing: BIO SCI 5313 : Pathogenic Microbiology

File: 1399.1

Last edit: 02/08/21 1:06 pm

Changes proposed by: djwesten

Programs referencing this course

PROPOSED: Biological Sciences BS with Emphasis area in Medical Laboratory Scientist

EV ENG-BS: Environmental Engineering BS

Requested Effective Change Date	**Spring 2022** ~~08/14/2018~~
Department	Biological Sciences
Discipline	Biological Sciences (BIO SCI)
Course Number	5313
Title	Pathogenic Microbiology
Abbreviated Course Title	Pathogenic Microbiology

Catalog Description

In Workflow

1. **RBIOLSCI 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. CAT entry
11. Peoplesoft

Approval Path

1. 02/08/21 12:31 pm
   David Duvernell (duvernelld): Approved for RBIOLSCI Chair
2. 02/08/21 1:06 pm
   Marita Tibbetts (tibbettsmg):

Approved for CCC Secretary
3. 02/19/21 1:03 pm Katie Shannon (shannonk): Approved for Sciences DSCC Chair

A study of medically important microorganisms. Students will learn about the properties that enable organisms to cause disease as well as the disease process within the host. Special emphasis will be placed on recent advances in the molecular genetics of host pathogen interaction.

Prerequisites

Bio Sci **3313** ~~2213~~ or Civ Eng 2601.

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 change:

We would like to change the prerequisites for Pathogenic Microbiology to Bio Sci 3313 (Microbiology) instead of Bio Sci 2213 (Cell Biology). A strong background in microbiology is critical for success in the pathogenic microbiology course and will allow the instructor to introduce more advance concepts. Civ Eng 2601 remains an appropriate prerequisite as it covers material that is included in Bio Sci 3313.

Semesters previously

offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (02/08/21 1:06 pm): changed eff. term to SP22 due to affecting change. MT

Key: 1399

Preview Bridge

Course Change Request

Date Submitted: 03/17/21 2:06 pm

Viewing: CER ENG 4310 : Ceramic Processing

File: 2618.1

Last edit: 03/18/21 8:17 am

Changes proposed by: smiller

Programs referencing this course

CR ENG-BS: Ceramic Engineering BS

Requested Effective Change Date	**Spring 2022** ~~08/14/2018~~
Department	Materials Science & Engineering
Discipline	Ceramic Engineering (CER ENG)
Course Number	4310
Title	Ceramic Processing
Abbreviated Course Title	Ceramic Processing

Catalog Description

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. CAT entry
11. Peoplesoft

Approval Path

1. 03/17/21 2:08 pm Greg Hilmas (ghilmas): Approved for RMATSENG Chair
2. 03/17/21 3:42 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

3. 03/26/21 3:15 pm Stephen Raper (sraper): Approved for Engineering DSCC Chair

Rudimentary theory ~~Powder, colloidal~~ and **practice of powder production, ceramic suspension rheology,** ~~sol-gel processing,~~ forming methods, drying, sintering and grain growth. Relation of processing steps to densification and microstructure development.

Prerequisites

Cer Eng 3210 and Senior standing.

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:

Changes reflect the current content of the course as taught recently.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer

Comments

sraper (03/18/21 8:17 am): Changed to required for majors.

Key: 2618

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/09/21 3:45 pm

Viewing: **CHEM ENG 3100 : Chemical Engineering Fluid Flow**

File: 1801.6

Last approved: 05/04/15 3:20 am

Last edit: 03/09/21 4:07 pm

Changes proposed by: luksc

Programs referencing this course

EV ENG-BS: Environmental Engineering BS

Other Courses referencing this course

In The Prerequisites:

CHEM ENG 3110 : Chemical Engineering Heat Transfer

CHEM ENG 4100 : Chemical Engineering Laboratory I

NUC ENG 4257 : Two-phase Flow in Energy Systems - I

Requested Effective Change Date	**Fall 2021** ~~01/12/2016~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)

In Workflow

1. **RCHEMENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/09/21 3:52 pm Hu Yang (huyang): Approved for RCHEMENG Chair
2. 03/09/21 3:56 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

Course Number 3100

Title
Chemical Engineering Fluid Flow

Abbreviated Course Title Fluid Flow

3. 03/17/21 2:50 pm Stephen Raper (sraper): Approved for Engineering DSCC Chair

History
1. May 4, 2015 by luksc (1801.1)

Catalog Description

Mass, energy, and momentum balance concepts in fluid flow are studied to provide a basis for study of flow measurement, fluid behavior, turbulent flow, dimensional analysis of fluid flows, and the study of some practical flow processes such as : filtration, fluidization, compressible flow, pipe networks.

Prerequisites
Chem Eng 2100 and Math 3304; Chem Eng majors only.

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:
Course is part of pre-2016 curriculum - not being offered anymore

Semesters previously offered as an

experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

tibbettsmg (03/09/21 4:07 pm): NE 4257 prereq change is proposed and not on FS21 schedule. MT

Key: 1801

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/09/21 3:46 pm

Viewing: **CHEM ENG 3110 : Chemical Engineering Heat Transfer**

File: 2306.6

Last approved: 05/04/15 3:20 am

Last edit: 03/09/21 4:08 pm

Changes proposed by: luksc

Programs referencing this course

EV ENG-BS: Environmental Engineering BS

Other Courses referencing this course

In The Prerequisites:

CHEM ENG 4100 : Chemical Engineering Laboratory I

Requested Effective Change Date	**Fall 2021** ~~01/12/2016~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	3110

In Workflow

1. **RCHEMENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 09/28/20 4:04 pm Kristy Giacomelli-Feys (kristyg): Rollback to Initiator
2. 09/30/20 10:55 am Hu Yang (huyang):

Title

Chemical Engineering Heat Transfer

Abbreviated Course Title

Heat Transfer

Catalog Description

Approved for RCHEMENG Chair

3. 09/30/20 11:14 am
   Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
4. 10/12/20 2:15 pm
   Stephen Raper (sraper): Approved for Engineering DSCC Chair
5. 10/13/20 8:11 am
   Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
6. 10/28/20 9:48 am
   Marita Tibbetts (tibbettsmg): Rollback to Initiator
7. 03/09/21 3:52 pm
   Hu Yang (huyang): Approved for RCHEMENG Chair
8. 03/09/21 4:08 pm
   Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
9. 03/17/21 2:50 pm
   Stephen Raper

(sraper): Approved for Engineering DSCC Chair

History

1. May 4, 2015 by luksc (2306.1)

Process principles of heat transfer in the chemical process industry. Steady and unsteady state heat conduction and radiation heat transfer. Free and forced convection and condensation and boiling heat transfer. Practical heat exchanger design.

Prerequisites

Math 2222 and preceded or accompanied by Chem Eng 3100. Chem Eng majors only.

Field Trip Statement

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

Justification for change:

Curriculum was revised in 2016. This course is no longer part of the curriculum.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

kristyg (09/28/20 4:04 pm): Rollback: Change in dept chair

tibbettsmg (10/28/20 9:48 am): Rollback: resubmit in batch along with any CC requests that prereqs are affected by. MT

Key: 2306

Preview Bridge

Course Change Request

Date Submitted: 03/09/21 3:38 pm

Viewing: **CHEM ENG 3111 : Numerical Computing in Chemical and Biochemical Engineering**

File: 4279.25

Last approved: 10/19/20 6:00 am

Last edit: 03/09/21 4:11 pm

Changes proposed by: luksc

Programs referencing this course

CH ENG-BS: Chemical Engineering BS

Other Courses referencing this course

In The Prerequisites:

CHEM ENG 3131 : Separations in Chemical and Biochemical Engineering

CHEM ENG 3150 : Chemical Engineering Reactor Design

CHEM ENG 6180 : Advanced Applications of Computational Fluid Dynamics

Requested Effective Change Date	Spring **2022** ~~2021~~
Department	Chemical and Biochemical Engineering

In Workflow

1. **RCHEMENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/09/21 3:53 pm Hu Yang (huyang): Approved for RCHEMENG Chair
2. 03/09/21 4:12 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

Discipline Chemical Engineering (CHEM ENG)

Course Number 3111

Title
Numerical Computing in Chemical and Biochemical Engineering

Abbreviated Course Title Numerical Computing

3. 03/18/21 8:14 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Jan 24, 2017 by Daniel Forciniti (forcinit)
2. Mar 6, 2017 by kristyg (4279.14)
3. Feb 18, 2019 by jcwang (4279.17)
4. Nov 4, 2019 by jcwang (4279.21)
5. Oct 19, 2020 by luksc (4279.22)

Catalog Description

Students will add to their programming skills by exploring numerical computational techniques for solving and analyzing algebraic and calculus-based equations and systems of equations that describe chemical engineering processes.

Prerequisites
Math 3304 and either Comp Sci 1500, or both Comp Sci 1570 and Comp Sci 1580, or both Comp Sci 1971 and Comp Sci 1981, or both Comp Sci 1972 and Comp Sci 1982; preceded or accompanied by Chem Eng 2100.

Field Trip Statement

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

Required for Majors Yes

Elective for Majors	No

Justification for change:

Better reflects the way the course is taught

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (03/09/21 4:11 pm): eff date changed to Sp22. MT

Key: 4279

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/09/21 3:46 pm

Viewing: **CHEM ENG 3130 : Staged Mass Transfer**

File: 2310.5

Last approved: 06/29/15 3:51 am

Last edit: 03/09/21 3:46 pm

Changes proposed by: luksc

Other Courses referencing this course

In The Prerequisites:

CHEM ENG 3140 : Continuous Mass Transfer

CHEM ENG 4096 : Chemical Engineering Economics

Requested Effective Change Date	**Fall 2021** ~~01/12/2016~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	3130
Title	Staged Mass Transfer
Abbreviated Course Title	Staged Mass Transfer

In Workflow

1. **RCHEMENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 09/28/20 4:04 pm Kristy Giacomelli-Feys (kristyg): Rollback to Initiator
2. 09/29/20 8:46 am Marita Tibbetts (tibbettsmg):

Catalog Description

Rollback to Initiator

3. 09/30/20 10:55 am
   Hu Yang (huyang): Approved for RCHEMENG Chair
4. 09/30/20 11:14 am
   Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
5. 10/12/20 2:15 pm
   Stephen Raper (sraper): Approved for Engineering DSCC Chair
6. 10/13/20 8:12 am
   Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
7. 10/28/20 9:47 am
   Marita Tibbetts (tibbettsmg): Rollback to Initiator
8. 03/09/21 3:53 pm
   Hu Yang (huyang): Approved for RCHEMENG Chair
9. 03/09/21 4:04 pm
   Marita Tibbetts

(tibbettsmg): Approved for CCC Secretary
10. 03/17/21 2:51 pm Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Jun 29, 2015 by luksc (2310.1)

Principles of equilibrium stage operations applied to distillation, liquid-liquid extraction, absorption, and leaching. Methods for estimating pressure drop and stage efficiencies are also studied. Quantitative solutions to practical problems are stressed.

Prerequisites

Chem Eng 3120, admitted to Chem Eng program.

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:

Curriculum was revised in 2016. This course is no longer part of the curriculum.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

kristyg (09/28/20 4:04 pm): Rollback: Change in dept chair

tibbettsmg (09/29/20 8:46 am): Rollback: Will you just try resubmitting this one to see if Dr. Yang can approve it?

tibbettsmg (10/28/20 9:47 am): Rollback: resubmit in batch along with any CC requests that prereqs are affected by. MT

Key: 2310

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/09/21 3:46 pm

Viewing: **CHEM ENG 3140 : Continuous Mass Transfer**

File: 1526.6

Last approved: 05/04/15 3:20 am

Last edit: 03/09/21 3:46 pm

Changes proposed by: luksc

Other Courses referencing this course

In The Prerequisites:

CHEM ENG 3150 : Chemical Engineering Reactor Design

Requested Effective Change Date	**Fall 2021** ~~01/12/2016~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	3140
Title	Continuous Mass Transfer
Abbreviated Course Title	Continuous Mass Transfer

In Workflow

1. **RCHEMENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 09/28/20 4:04 pm Kristy Giacomelli-Feys (kristyg): Rollback to Initiator
2. 09/30/20 10:55 am Hu Yang (huyang):

Catalog Description

Approved for RCHEMENG Chair

3. 09/30/20 11:15 am
   Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
4. 10/12/20 2:15 pm
   Stephen Raper (sraper): Approved for Engineering DSCC Chair
5. 10/13/20 8:13 am
   Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
6. 10/28/20 9:48 am
   Marita Tibbetts (tibbettsmg): Rollback to Initiator
7. 03/09/21 3:53 pm
   Hu Yang (huyang): Approved for RCHEMENG Chair
8. 03/09/21 4:01 pm
   Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
9. 03/17/21 2:51 pm
   Stephen Raper

(sraper): Approved for Engineering DSCC Chair

History

1. May 4, 2015 by luksc (1526.1)

Fundamentals of diffusion and mass transfer applied to absorption, extraction, humidification, drying and filtration. Design and rating of continuous chemical separators.

Prerequisites

Preceded or accompanied by Chem Eng 3130. Chem Eng majors only.

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:

Curriculum was revised in 2016. This course is no longer part of the curriculum.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

kristyg (09/28/20 4:04 pm): Rollback: Change in dept chair

tibbettsmg (10/28/20 9:48 am): Rollback: resubmit in batch along with any CC requests that prereqs are affected by. MT

Key: 1526

Preview Bridge

Course Change Request

Date Submitted: 03/09/21 3:28 pm

Viewing: **CHEM ENG 3150 : Chemical Engineering Reactor Design**

File: 1038.10

Last approved: 05/24/16 4:57 am

Last edit: 03/09/21 3:35 pm

Changes proposed by: luksc

Programs referencing this course

CH ENG-BS: Chemical Engineering BS

Other Courses referencing this course

In The Prerequisites:

CHEM ENG 4091 : Chemical Process Design I

CHEM ENG 4097 : Chemical Process Design II

CHEM ENG 4110 : Chemical Engineering Process Dynamics And Control

CHEM ENG 4130 : Chemical Engineering Laboratory II

CHEM ENG 4140 : Chemical Process Safety

CHEM ENG 4210 : Biochemical Reactors

CHEM ENG 4241 : Process Safety in the Chemical and Biochemical Industries

CHEM ENG 5110 : Intermediate Chemical Reactor Design

CHEM ENG 5210 : Intermediate Biochemical Reactors

In Workflow

1. **RCHEMENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/09/21 3:31 pm Hu Yang (huyang): Approved for RCHEMENG Chair
2. 03/09/21 3:36 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

Requested Effective Change Date	**Spring 2022** ~~08/14/2018~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	3150
Title	Chemical Engineering Reactor Design
Abbreviated Course Title	Chem Engr Reactor Design

3. 03/18/21 8:14 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Jun 29, 2015 by luksc (1038.1)
2. May 24, 2016 by forcinit (1038.5)

Catalog Description

The study of chemical reaction kinetics and their application to the design and operation of chemical and catalytic reactors.

Prerequisites

Preceded or accompanied by ~~either Chem Eng 3140 or Chem Eng 3200 or preceded by~~ both Chem Eng 3111 and Chem Eng 3101. Admitted to Chem Eng program.

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:

Removed prerequisites from previous version of curriculum (pre 2016)

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (03/09/21 3:35 pm): changed eff. date to Sp22. MT

Key: 1038

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/09/21 3:47 pm

Viewing: **CHEM ENG 3160 : Molecular Chemical Engineering**

File: 1479.4

Last approved: 06/24/15 3:58 am

Last edit: 03/09/21 3:47 pm

Changes proposed by: luksc

Requested Effective Change Date	**Fall 2021** ~~08/17/2015~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	3160
Title	Molecular Chemical Engineering
Abbreviated Course Title	Molecular Ch Eng

Catalog Description

In Workflow

1. **RCHEMENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 09/28/20 4:04 pm Kristy Giacomelli-Feys (kristyg): Rollback to Initiator
2. 09/30/20 10:55 am Hu Yang (huyang):

Approved for RCHEMENG Chair

3. 09/30/20 11:15 am
   Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
4. 10/12/20 2:15 pm
   Stephen Raper (sraper): Approved for Engineering DSCC Chair
5. 10/13/20 8:14 am
   Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
6. 10/28/20 9:48 am
   Marita Tibbetts (tibbettsmg): Rollback to Initiator
7. 03/09/21 3:53 pm
   Hu Yang (huyang): Approved for RCHEMENG Chair
8. 03/09/21 4:12 pm
   Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
9. 03/17/21 2:51 pm
   Stephen Raper

(sraper): Approved for Engineering DSCC Chair

History

1. Jun 24, 2015 by luksc (1479.1)

Introduction to the molecular aspects of chemical thermodynamics, transport processes, reaction dynamics, and statistical and quantum mechanics.

Prerequisites

Chem Eng 3120, admitted to Chem Eng program.

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:

Curriculum was revised in 2016. This course is no longer part of the curriculum.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

kristyg (09/28/20 4:04 pm): Rollback: Change in dept chair

tibbettsmg (10/28/20 9:48 am): Rollback: resubmit in batch along with any CC requests that prereqs are affected by. MT

Key: 1479

Preview Bridge

Course Change Request

Date Submitted: 03/09/21 3:25 pm

Viewing: **CHEM ENG 4091 : Chemical Process Design I**

File: 4285.16

Last approved: 02/04/19 5:02 am

Last edit: 03/09/21 3:37 pm

Changes proposed by: luksc

Programs referencing this course

CH ENG-BS: Chemical Engineering BS

Other Courses referencing this course

In The Prerequisites:

CHEM ENG 4097 : Chemical Process Design II

Requested Effective Change Date	**Spring 2022** ~~Fall 2019~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	4091
Title	Chemical Process Design I

In Workflow

1. **RCHEMENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/09/21 3:31 pm Hu Yang (huyang): Approved for RCHEMENG Chair
2. 03/09/21 3:38 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

Abbreviated Course Title	Chem Process Design I

Catalog Description

Economic analysis of a chemical process including capital requirements, operating costs, earnings, and profits. The economic balance is applied to chemical engineering operations and processes. Optimization and scheduling techniques are applied to process evaluation. Preliminary process design and use of simulation software.

Prerequisites

Chem Eng 3131 and Chem Eng 3141; preceded or accompanied by either Chem Eng 3150 or Chem Eng **5250; preceded or accompanied by either English 3560 or English 1160.** ~~5250.~~

Field Trip Statement

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

3. 03/18/21 8:14 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Jan 10, 2017 by Daniel Forciniti (forcinit)
2. Mar 6, 2017 by kristyg (4285.12)
3. Feb 4, 2019 by jcwang (4285.14)

Justification for change:

1. This is a writing intensive course and English was added to the curriculum to better prepare our students for their design courses.
2. This course is no longer taught with a laboratory component.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (03/09/21 3:37 pm): updated eff. term to Sp22. MT

Key: 4285

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/09/21 3:47 pm

Viewing: **CHEM ENG 4096 : Chemical Engineering Economics**

File: 1083.1

Last edit: 03/09/21 3:47 pm

Changes proposed by: luksc

Requested Effective Change Date	**Fall 2021** ~~08/14/2018~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	4096
Title	Chemical Engineering Economics
Abbreviated Course Title	Chemical Engr Economics

Catalog Description

In Workflow

1. **RCHEMENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 09/28/20 4:04 pm Kristy Giacomelli-Feys (kristyg): Rollback to Initiator
2. 09/30/20 10:55 am Hu Yang (huyang):

Approved for RCHEMENG Chair

3. 09/30/20 11:16 am
   Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
4. 10/12/20 2:16 pm
   Stephen Raper (sraper): Approved for Engineering DSCC Chair
5. 10/13/20 8:16 am
   Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
6. 10/28/20 9:48 am
   Marita Tibbetts (tibbettsmg): Rollback to Initiator
7. 03/09/21 3:53 pm
   Hu Yang (huyang): Approved for RCHEMENG Chair
8. 03/09/21 4:04 pm
   Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
9. 03/17/21 2:51 pm
   Stephen Raper

(sraper): Approved for Engineering DSCC Chair

Economic analysis of a chemical process including capital requirements, operating costs, earnings, and profits. The economic balance is applied to chemical engineering operations and processes. Optimization and scheduling techniques are applied to process evaluation.

Prerequisites

Preceded or accompanied by Chem Eng 3130.

Field Trip Statement

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

Justification for change:

Curriculum was revised in 2016. This course is no longer part of the curriculum.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer

Comments

kristyg (09/28/20 4:04 pm): Rollback: Change in dept chair

tibbettsmg (10/28/20 9:48 am): Rollback: resubmit in batch along with any CC requests that prereqs are affected by. MT

Key: 1083

Preview Bridge

Course Change Request

Date Submitted: 03/09/21 3:25 pm

Viewing: **CHEM ENG 4097 : Chemical Process Design II**

File: 862.20

Last approved: 02/04/19 5:02 am

Last edit: 03/09/21 3:38 pm

Changes proposed by: luksc

Programs referencing this course

CH ENG-BS: Chemical Engineering BS

Requested Effective Change Date	**Spring 2022** ~~Fall 2019~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	4097
Title	Chemical Process Design II
Abbreviated Course Title	Chem Process Design II

Catalog Description

In Workflow

1. **RCHEMENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/09/21 3:31 pm Hu Yang (huyang): Approved for RCHEMENG Chair
2. 03/09/21 3:38 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

3. 03/18/21 8:14 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. May 4, 2015 by luksc (862.1)
2. Mar 6, 2017 by forcinit (862.4)
3. Feb 4, 2019 by jcwang (862.18)

Engineering principles involved in the design and layout of chemical process equipment. Material and energy balances, equipment selection and design, and preconstruction cost estimation are performed for a capstone design project. Communication emphasized course.

Prerequisites

Chem Eng 3150 and Chem Eng 4091; preceded or accompanied by Chem Eng 4110.

Field Trip Statement

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

Justification for change:

This course is no longer taught with a laboratory component

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (03/09/21 3:38 pm): updated eff. term to Sp22. MT

Key: 862

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/09/21 3:48 pm

Viewing: **CHEM ENG 4100 : Chemical Engineering Laboratory I**

File: 1394.1

Last edit: 03/09/21 4:10 pm

Changes proposed by: luksc

Other Courses referencing this course

In The Prerequisites:

CHEM ENG 4110 : Chemical Engineering Process Dynamics And Control

Requested Effective Change Date	**Spring 2022** ~~08/14/2018~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	4100
Title	Chemical Engineering Laboratory I
Abbreviated Course Title	Chemical Engr Lab I

In Workflow

1. **RCHEMENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 09/28/20 4:04 pm Kristy Giacomelli-Feys (kristyg): Rollback to Initiator
2. 09/30/20 10:55 am Hu Yang (huyang):

Catalog Description

Approved for RCHEMENG Chair
3. 09/30/20 11:17 am
   Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
4. 10/12/20 2:16 pm
   Stephen Raper (sraper): Approved for Engineering DSCC Chair
5. 10/13/20 8:17 am
   Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
6. 10/28/20 9:49 am
   Marita Tibbetts (tibbettsmg): Rollback to Initiator
7. 03/09/21 3:53 pm
   Hu Yang (huyang): Approved for RCHEMENG Chair
8. 03/09/21 4:10 pm
   Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
9. 03/17/21 2:51 pm
   Stephen Raper

(sraper): Approved for Engineering DSCC Chair

Experiments associated with unit operations involving fluid flow and heat transfer. Principles of data and uncertainty analysis are introduced with emphasis on model building. Communication skills are stressed. This is a communication emphasized course.

Prerequisites

Chem Eng 3100 and Chem Eng 3110.

Field Trip Statement

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

Justification for change:

Curriculum was revised in 2016. This course is no longer part of the curriculum.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer

Comments

kristyg (09/28/20 4:04 pm): Rollback: Change in dept chair

tibbettsmg (10/28/20 9:49 am): Rollback: resubmit in batch along with any CC requests that prereqs are affected by. MT

tibbettsmg (03/09/21 4:10 pm): ChE4110 proposed for Sp22. changed eff date for 4100 to match. MT

Key: 1394

Preview Bridge

Course Change Request

Date Submitted: 03/09/21 3:30 pm

Viewing: **CHEM ENG 4110 : Chemical Engineering Process Dynamics And Control**

File: 2072.8

Last approved: 05/24/16 4:57 am

Last edit: 03/09/21 3:39 pm

Changes proposed by: luksc

Programs referencing this course

- CH ENG-BS: Chemical Engineering BS
- AUTOENG-MI: Minor in Automation Engineering
- AUTOEN-CTU: Undergraduate Certificate in Automation Engineering
- SPACE R-CT: Space Resources Certificate

Other Courses referencing this course

In The Prerequisites:

- CHEM ENG 4097 : Chemical Process Design II
- CHEM ENG 4120 : Process Dynamics And Control Laboratory
- CHEM ENG 5190 : Plantwide Process Control
- CHEM ENG 5355 : Process Control System Safety, Security and Alarms
- ELEC ENG 5350 : Plantwide Process Control
- ELEC ENG 5355 : Process Control System Safety, Security and Alarms

In Workflow

1. **RCHEMENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/09/21 3:32 pm Hu Yang (huyang): Approved for RCHEMENG Chair
2. 03/09/21 3:40 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

Requested Effective Change Date	**Spring 2022** ~~08/14/2018~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	4110
Title	Chemical Engineering Process Dynamics And Control
Abbreviated Course Title	Process Control

3. 03/18/21 8:14 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. May 24, 2016 by forcinit (2072.1)

Catalog Description

Study of the dynamics of chemical processes and the instruments and software used to measure and control temperature, pressure, liquid level, flow, and composition. Generally offered fall semester only.

Prerequisites

Preceded ~~or accompanied~~ by ~~any one of~~ Chem Eng ~~4100 or Chem Eng 4130 or Chem Eng 4200; or preceded by Chem Eng~~ 3150, Chem Eng 3131 and Chem Eng **3141.** ~~3141; or preceded by Chem Eng 3150 and preceded or accompanied by Chem Eng 5250.~~

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:

Removed prerequisites from previous version of curriculum (pre 2016)

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (03/09/21 3:39 pm): updated eff. term to Sp22. MT

Key: 2072

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/09/21 3:48 pm

Viewing: **CHEM ENG 4120 : Process Dynamics And Control Laboratory**

File: 383.1

Last edit: 03/09/21 3:48 pm

Changes proposed by: luksc

Requested Effective Change Date	**Fall 2021** ~~08/14/2018~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	4120
Title	Process Dynamics And Control Laboratory
Abbreviated Course Title	Process Control Lab

Catalog Description

In Workflow

1. **RCHEMENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 09/28/20 4:04 pm Kristy Giacomelli-Feys (kristyg): Rollback to Initiator
2. 09/30/20 10:55 am Hu Yang (huyang):

Approved for RCHEMENG Chair

3. 09/30/20 11:17 am
   Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
4. 10/12/20 2:16 pm
   Stephen Raper (sraper): Approved for Engineering DSCC Chair
5. 10/13/20 8:18 am
   Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
6. 10/28/20 9:49 am
   Marita Tibbetts (tibbettsmg): Rollback to Initiator
7. 03/09/21 3:53 pm
   Hu Yang (huyang): Approved for RCHEMENG Chair
8. 03/09/21 4:13 pm
   Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
9. 03/17/21 2:51 pm
   Stephen Raper

(sraper): Approved for Engineering DSCC Chair

Application of concepts of industrial process dynamics and control using experiments that demonstrate different control and sensing devices and software. This is a communications emphasized course.

Prerequisites

Preceded or accompanied by Chem Eng 4110.

Field Trip Statement

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

Justification for change:

Curriculum was revised in 2016. This course is no longer part of the curriculum.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

kristyg (09/28/20 4:04 pm): Rollback: Change in dept chair

tibbettsmg (10/28/20 9:49 am): Rollback: resubmit in batch along with any CC requests that prereqs are affected by. MT

Key: 383

Preview Bridge

Course Change Request

Date Submitted: 03/09/21 3:32 pm

Viewing: **CHEM ENG 4130 : Chemical Engineering Laboratory II**

File: 792.10

Last approved: 07/27/20 6:01 am

Last edit: 03/09/21 3:41 pm

Changes proposed by: luksc

Programs referencing this course

CH ENG-BS: Chemical Engineering BS

Other Courses referencing this course

In The Prerequisites:

CHEM ENG 4110 : Chemical Engineering Process Dynamics And Control

Requested Effective Change Date	**Spring 2022** ~~Fall 2020~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	4130
Title	Chemical Engineering Laboratory II

In Workflow

1. **RCHEMENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/09/21 3:34 pm Hu Yang (huyang): Approved for RCHEMENG Chair
2. 03/09/21 3:41 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

Abbreviated Course Title	Chem Eng Lab II

Catalog Description

Experiments illustrating the unit operations of continuous and staged separation. Experimental design methods are extended to include the principles of regression and model building. Communication skills are stressed. This is a communication emphasized course.

Prerequisites

Stat 3113, Chem Eng 3141 and Chem Eng 3131; preceded or accompanied by Chem Eng **3150 and either English 3560 or English 1160.** ~~3150.~~

Field Trip Statement

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

Justification for change:

Modification reflects current curriculum

3. 03/18/21 8:14 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. May 24, 2016 by forcinit (792.1)
2. Jul 27, 2020 by ershenb (792.7)

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (03/09/21 3:41 pm): updated eff. term to Sp22. MT

Key: 792

Preview Bridge

Course Change Request

Date Submitted: 03/17/21 11:13 am

Viewing: **CHEM ENG 4220 : Biochemical Reactor Laboratory**

File: 797.13

Last approved: 08/01/20 6:01 am

Last edit: 03/17/21 11:28 am

Changes proposed by: luksc

Programs referencing this course

CH ENG-BS: Chemical Engineering BS

Requested Effective Change Date	**Spring 2022** ~~Fall 2020~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	4220
Title	Biochemical Reactor Laboratory
Abbreviated Course Title	Bioreactor Laboratory

Catalog Description

In Workflow

1. **RCHEMENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/17/21 11:14 am
   Hu Yang (huyang): Approved for RCHEMENG Chair
2. 03/17/21 11:28 am
   Marita Tibbetts (tibbettsmg):

Approved for CCC Secretary
3. 03/18/21 8:14 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Oct 21, 2016 by forcinit (797.1)
2. Aug 1, 2020 by jcwang (797.10)

Introduction to the unit operations involved with the production of biochemicals. The experiments emphasize the isolation of proteins and enzymes from tissue and bacteria cells. This is a communications emphasized course.

Prerequisites

Stat 3113; Preceded or accompanied by Chem Eng ~~5250 and Chem Eng~~ 4210.

Field Trip Statement

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

Justification for change:

modified the way this is taught to allow students to take these courses in either order

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 797

Preview Bridge

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/09/21 3:48 pm

Viewing: **CHEM ENG 4230 : Bioprocess Safety**

File: 4252.5

Last approved: 05/24/16 4:57 am

Last edit: 03/09/21 3:58 pm

Changes proposed by: luksc

Requested Effective Change Date	**Fall 2021** ~~08/14/2018~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	4230
Title	Bioprocess Safety
Abbreviated Course Title	Bioprocess Safety

Catalog Description

In Workflow

1. **RCHEMENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/09/21 3:53 pm Hu Yang (huyang): Approved for RCHEMENG Chair
2. 03/09/21 3:59 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

3. 03/17/21 2:51 pm Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. May 24, 2016 by marlene

This course covers a risk assessment, biohazard containment and inactivation practices, and other biosafety issues relevant to industrial bioprocessing. Considerations relating to the release of genetically modified organisms are also discussed.

Prerequisites

Preceded or accompanied by Chem Eng 4210.

Field Trip Statement

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

Justification for change:

Curriculum was revised in 2016. This course is no longer part of the curriculum.

Semesters previously offered as an

experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 4252

Preview Bridge

Course Change Request

Date Submitted: 03/09/21 3:35 pm

Viewing: **CHEM ENG 5220 : Intermediate Engineering Thermodynamics**

File: 4310.4

Last approved: 10/21/16 2:23 pm

Last edit: 03/17/21 2:38 pm

Changes proposed by: luksc

Programs referencing this course

CH ENG-MS: Chemical Engineering MS

CHEMPRO-CT: Chemical Process Engineering CT

Requested Effective Change Date	**Spring 2022** ~~08/14/2018~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	5220
Title	Intermediate Engineering Thermodynamics
Abbreviated Course Title	Intermediate Thermo

Catalog Description

In Workflow

1. **RCHEMENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/09/21 3:37 pm Hu Yang (huyang): Approved for RCHEMENG Chair
2. 03/09/21 3:43 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

3. 03/18/21 8:14 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Oct 21, 2016 by Daniel Forciniti (forcinit)

Review thermodynamic principles for pure fluids and mixtures. Emphasis on applications for the chemical industry and use of fundamental relations and equations of state.

Prerequisites

Chem Eng 3120 ~~Senior~~ or graduate standing.

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:

Better reflects true requirements. Some students came in with enough transfer credit and tried to take this course before they had Thermo I, but they had senior standing

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (03/09/21 3:42 pm): updated eff. term to Sp22. MT

sraper (03/17/21 2:38 pm): this is likely an elective for majors. It is not in the old or new curriculum

Key: 4310

Preview Bridge

Course Change Request

Date Submitted: 02/16/21 9:03 am

Viewing: **CHEM ENG 5305 : Hazardous Materials Management**

File: 2048.2

Last approved: 07/27/20 6:01 am

Last edit: 02/16/21 10:27 am

Changes proposed by: luksc

Programs referencing this course

CHEMPRO-CT: Chemical Process Engineering CT

Requested Effective Change Date	**Spring 2022** ~~Fall 2020~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	5305
Title	Hazardous Materials Management
Abbreviated Course Title	Hazardous Materials Mgt

Catalog Description

In Workflow

1. **RCHEMENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 02/16/21 9:20 am Hu Yang (huyang): Approved for RCHEMENG Chair
2. 02/16/21 10:27 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

3. 02/26/21 8:46 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Jul 27, 2020 by luksc (2048.1)

Major themes: hazard indentification and characterization; safety, health and environmental management; and the protection of safety, health and environment. Students will have an understanding of work place and environmental hazards in order to be able to facilitate their management and control. The course will include an intensive 30 hour hands-on workshop

Prerequisites

Chem Eng 3131 or graduate standing.

Field Trip Statement

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

Justification for change:

The instructors (Dr. Ludlow with the assistance of two industry volunteers) taught it in Fa20 as a 1-credit lab, but decided that did not work as well as hoped and wish to return this to a 3-credit course.

Semesters previously offered as an experimental course

Last taught as a 3-credit course in 2010

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (02/16/21 10:27 am): effective date changed to SP22. MT

Key: 2048

Preview Bridge

Course Change Request

Date Submitted: 02/25/21 9:23 am

Viewing: **COMP ENG 4096 : Computer Engineering Senior Project I**

File: 1392.7

Last approved: 05/24/16 4:58 am

Last edit: 02/26/21 7:32 am

Changes proposed by: stanleyj

Programs referencing this course

CP ENG-BS: Computer Engineering BS

EL ENG-BS: Electrical Engineering BS

Other Courses referencing this course

In The Catalog Description:

COMP ENG 4097 : Computer Engineering Senior Project II

In The Prerequisites:

COMP ENG 4097 : Computer Engineering Senior Project II

Requested Effective Change Date	**Spring 2022** ~~08/14/2018~~
Department	Electrical and Computer Engineering
Discipline	Computer Engineering (COMP ENG)
Course Number	4096

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. CAT entry
11. Peoplesoft

Approval Path

1. 02/25/21 5:17 pm Watkins (watkins): Approved for RELECENG Chair
2. 02/26/21 7:32 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

Title
Computer Engineering Senior Project I

Abbreviated Course Title: Cp Eng Senior Project I

Catalog Description

A complete design cycle. Working in small teams, students will design, document, analyze, implement, and test a product. Topics include: Iteration in design, prototyping, group dynamics, design reviews, making effective presentations, concurrent design, designing for test, ethics and standards, testing and evaluation.

Prerequisites

Comp Eng ~~2210, either Econ 1100 or Econ 1200, either English 3560 or English 1160, Comp Eng~~ 3150, Comp Eng 3151, Comp Eng **3110.** ~~3110, and Elec Eng 2200.~~

Preceded or accompanied by

either English 3560 or English 1160, Elec Eng 2200, and Comp Sci 1575.

Field Trip Statement

Credit Hours: LEC: 0 LAB: .5 IND: 0 RSD: .5
Total: 1

Required for Majors: Yes

Elective for Majors: No

3. 03/04/21 1:23 pm Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Apr 28, 2014 by lahne (1392.1)
2. Apr 1, 2015 by kleb6b (1392.2)
3. May 24, 2016 by stanleyj (1392.3)

Justification for change:

Current prerequisites
Comp Eng 2210, either Econ 1100 or Econ 1200, either English 3560 or English 1160, Comp Eng 3150, Comp Eng 3151, Comp Eng 3110, and Elec Eng 2200

The prerequisites have been updated to better reflect needed student backgrounds for beginning and undertaking their capstone projects. The prerequisite changes eliminate: Comp Eng 2210, which is a prerequisite for Comp Eng 3150. In order to enhance student progression through the Comp Eng BS program and provide the necessary hardware and software technical background to engage their capstone projects, technical writing, electronic devices, and data structures have been adjusted/added to pre-/co-requisite courses.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (02/26/21 7:32 am): deadline has passed for affecting changes for FS21. Updated effective date to Spring 22. MT

Key: 1392

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 03/08/21 7:47 am

Viewing: **COMP SCI 6407 : Internet of Things with Data Science**

File: 4752

Last edit: 03/08/21 7:47 am

Changes proposed by: zhupe

Requested Effective Change Date	Fall 2021
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	6407
Title	Internet of Things with Data Science
Abbreviated Course Title	IoT with Data Science

Catalog Description

In Workflow

1. **RCOMPSCI 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. CAT entry
11. Peoplesoft

Approval Path

1. 12/24/20 12:08 pm
   Samuel Frimpong (frimpong): Approved for RCOMPSCI Chair
2. 01/04/21 2:35 pm
   Marita Tibbetts (tibbettsmg):

Rollback to Initiator
3. 03/08/21 7:58 am Samuel Frimpong (frimpong): Approved for RCOMPSCI Chair
4. 03/08/21 10:09 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
5. 03/18/21 8:14 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

This course provides both theoretical and practical treatments. Part 1. IoT wireless technologies, IoT security, IoT development kit. Part 2. Python programming, data analysis with Pandas, visualization with Matplotlib, machine learning with Scikit-learn. Deep learning (optional). Part 3. Advanced Topics in IoT-DS (Research oriented; flipped classroom).

Prerequisites

Graduate standing with reasonable educational background in computer networks, data mining or machine learning, probability and statistics, and programming languages. Recommended for PhD and thesis-based MS students.

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 new course:

Course has successfully run for two consecutive semesters. Topics of the course are important and timely, backed up by the increasingly high demand from both industry and academia for IoT professionals and Data Scientists.

Semesters previously offered as an experimental course

The course is offered in FS2020 and SP2021 as an experimental course.
FS2020 (enrollment: 11), SP2021 (enrollment: 29)

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (01/04/21 2:35 pm): Rollback: This course has not been successfully taught twice. You will need to resubmit after it has actually been taught successfully in Spring 21. MT

Key: 4752

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 03/11/21 1:53 pm

Viewing: **EDUC 3298 : Teacher Field Experience III**

File: 4797

Last edit: 03/11/21 2:11 pm

Changes proposed by: bakm75

Programs referencing this course

- PHYSIC-BS: Physics BS
- AP MATH-BS: Applied Mathematics BS
- HIST-BA: History BA

Requested Effective Change Date	Fall 2021
Department	Teacher Education and Certification
Discipline	Education (EDUC)
Course Number	3298
Title	Teacher Field Experience III
Abbreviated Course Title	Tchr Field III

Catalog Description

In Workflow

1. **REDUCATION 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/11/21 1:55 pm Beth Kania-Gosche (bkaniagosche): Approved for REDUCATION Chair
2. 03/11/21 2:11 pm Marita Tibbetts

(tibbettsmg): Approved for CCC Secretary
3. 03/11/21 3:37 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

Students enrolled in this course will be planning and implementing activities and assessments with children or adolescents in structured learning environments. Students must be supervised by experienced, credentialed educators and request placement through the department. At least 30 hours of contact time is required per credit hour.

Prerequisites

EDUC 1104 and 1164.

Field Trip Statement

Students will be in area school districts for at least 30 hours.

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

Justification for new course:

EDUC 1104 was lowered to one credit hour and 30 contact hours with K-12 students. This course is the remaining credit hour and contact time, so that the degree and field experiences remain at the same level, just at a different point in the program. This course is at the 300 level with the intention that students will take it the semester or year prior to student teaching. A field experience closer to the final

student teaching semester will help students be more effective. Feedback from students indicated that they needed more sustained time in a school before student teaching.

Semesters previously offered as an experimental course

This was submitted and approved as an experimental course, but because of Covid, we have not yet offered it. I was told need to submit this as a permanent course since it will be required.
It is not a DESE requirement; this field experience is above the DESE minimum criteria.

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (03/11/21 2:11 pm): This is a required course for the History-BA Secondary Education Emphasis. MT

Key: 4797

Preview Bridge

Course Change Request

Date Submitted: 03/05/21 8:15 am

Viewing: **EDUC 3340 : Assessment of Student Learning**

File: 1839.8

Last approved: 03/04/21 6:01 am

Last edit: 03/05/21 9:42 am

Changes proposed by: bakm75

Programs referencing this course

PHYSIC-BS: Physics BS

AP MATH-BS: Applied Mathematics BS

BIO SC-BA: Biological Sciences BA

HIST-BA: History BA

PROPOSED: Teaching and Learning Undergraduate Certificate

Other Courses referencing this course

In The Prerequisites:

EDUC 3280 : Instructional Strategies in the Content Area

Requested Effective Change Date	Spring **2022** ~~2021~~
Department	Teacher Education and Certification
Discipline	Education (EDUC)

In Workflow

1. **REDUCATION 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/04/21 11:06 am Marita Tibbetts (tibbettsmg): Rollback to Initiator
2. 03/05/21 6:42 am Marita Tibbetts (tibbettsmg):

Course Number 3340

Title

Assessment of Student Learning

Abbreviated Course Title Assessment of Learning

Catalog Description

Students will learn to evaluate assessments for validity and reliability. Students will develop formative and summative assessments aligned with learning outcomes. Writing quality rubrics and universal design will be introduced. Students will analyze data to make instructional decisions and learn to evaluate vendor assessments.

Prerequisites

Rollback to Initiator

3. 03/05/21 8:15 am Beth Kania-Gosche (bkaniagosche): Approved for REDUCATION Chair
4. 03/05/21 9:42 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
5. 03/05/21 9:44 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

History

1. Feb 4, 2019 by carterke (1839.1)
2. Nov 25, 2019 by bakm75 (1839.5)
3. Mar 4, 2021 by tibbettsmg (1839.6)

Educ 1040.

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:

administratively correcting co-list approved by CCC effective Sp21.

Semesters previously offered as an experimental course

Co-Listed Courses:

PSYCH 4340 - Assessment of Student Learning

Course Reviewer Comments

tibbettsmg (03/04/21 11:06 am): Rollback: rollback submitted by mistake

tibbettsmg (03/05/21 6:42 am): Rollback: rollback so Educ can submit Psych 3340 co-list change to proposed renumbering of Psych 4340.

Key: 1839

Preview Bridge

Course Change Request

Date Submitted: 02/25/21 4:09 pm

Viewing: **ELEC ENG 4096 : Electrical Engineering Senior Project I**

File: 2214.13

Last approved: 02/25/19 4:54 am

Last edit: 02/26/21 7:34 am

Changes proposed by: kte

Programs referencing this course

CP ENG-BS: Computer Engineering BS

EL ENG-BS: Electrical Engineering BS

EL ENG-MI: Minor in Electrical Engineering

Other Courses referencing this course

In The Prerequisites:

ELEC ENG 4097 : Electrical Engineering Senior Project II

Requested Effective Change Date	**Spring 2022** ~~Fall 2019~~
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	4096
Title	

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. CAT entry
11. Peoplesoft

Approval Path

1. 02/25/21 5:17 pm Watkins (watkins): Approved for RELECENG Chair
2. 02/26/21 7:34 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

Electrical Engineering Senior Project I

Abbreviated Course Title: EE Senior Project I

Catalog Description

A complete design cycle. Working in small teams, students will design, document, analyze, implement and test a product. Topics include: Iteration in design, prototyping, group dynamics, design reviews, making effective presentations, concurrent design, designing for test, ethics and standards, testing and evaluation.

Prerequisites

Comp Eng 2210, ~~Econ 1100 or Econ 1200, English 3560 or English 1160,~~ and at least three of the following: Elec Eng 3500 or Elec Eng 3540; Elec Eng 3320, Elec Eng 3430, Elec Eng 3600 or Elec Eng **3100 (may be preceded or accompanied by one of the previous courses).** ~~3100.~~ **Preceded or accompanied by English 3560 or English 1160,**

Field Trip Statement

Credit Hours: LEC: 0 LAB: .5 IND: 0 RSD: .5
Total: 1

Required for Majors: Yes

3. 03/04/21 1:23 pm Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Apr 28, 2014 by lahne (2214.1)
2. Oct 20, 2014 by lahne (2214.2)
3. Jun 29, 2018 by sweetk (2214.3)
4. Feb 25, 2019 by ferdowsi (2214.11)

Elective for Majors	No

Justification for change:

The prerequisite change eliminates economics which is generally taken in the Freshman year. The technical writing background is not needed until the follow-on Elec Eng 4097 course. Allow an additional one of the required Junior-level core courses to be a co-requisite as they will still have completed all of the Junior-level core courses before enrolling in the follow-on Elec Eng 4097 course.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (02/26/21 7:34 am): deadline has past for affecting changes for FS21. Updated effective date to Spring 22. MT

Key: 2214

Preview Bridge

Course Change Request

Date Submitted: 03/05/21 11:36 am

Viewing: ELEC ENG 5820 ~~5370~~ : Introduction to Neural Networks and Applications

File: 1840.1

Last edit: 03/05/21 11:36 am

Changes proposed by: kte

Requested Effective Change Date	**Spring 2022** ~~08/14/2018~~
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	**5820** ~~5370~~
Title	Introduction to Neural Networks and Applications
Abbreviated Course Title	Intro to Neurl Netwk&App

Catalog Description

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. CAT entry
11. Peoplesoft

Approval Path

1. 03/05/21 11:34 am
   Marita Tibbetts (tibbettsmg): Rollback to Initiator
2. 03/12/21 1:15 pm
   Watkins (watkins):

Approved for RELECENG Chair
3. 03/12/21 1:16 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
4. 03/18/21 8:14 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

The course provides an introduction to basic neural network architectures and their applications. Students learn to construct neural networks and train them to solve engineering problems, specifically pattern recognition and function approximation. Mathematical analysis of network architectures, training algorithms and practical applications of neural nets.

Prerequisites
Graduate Standing.

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:

Changing Elec Eng course co-list number. The second digit classifies this course as a control systems course in Elec Eng, which it is not. The second digit of 8 is a general classification.

Semesters previously offered as an experimental course

Co-Listed Courses:

SYS ENG 5212 - Introduction to Neural Networks and Applications

Course Reviewer Comments

tibbettsmg (03/05/21 11:34 am): Rollback: rollback for additional changes. MT

Key: 1840

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 03/02/21 4:42 pm

Viewing: **GEOPHYS 6221 : Advanced Geophysical Data Analysis**

File: 4796

Last edit: 03/03/21 8:33 am

Changes proposed by: liukh

Requested Effective Change Date	Summer 2021
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Geophysics (GEOPHYS)
Course Number	6221
Title	Advanced Geophysical Data Analysis
Abbreviated Course Title	Adv Geophys Data Analys

Catalog Description

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. CAT entry
11. Peoplesoft

Approval Path

1. 03/03/21 8:28 am David Borrok (borrokd): Approved for RGEOSENG Chair
2. 03/03/21 8:34 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

3. 03/17/21 1:56 pm Katie Shannon (shannonk): Approved for Sciences DSCC Chair

Applications of advanced time series and spatial series analysis techniques to geophysical data. Topics covered include digitization and aliasing of geophysical signals, frequency and wavenumber spectra, digital filtering and linear systems theory. Hands-on data processing exercises will provide theoretical knowledge as applied to geophysical investigations.

Prerequisites

Comp Sci 1970 and Comp Sci 1980 or equivalents.

Field Trip Statement

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

Justification for new course:

The course has been successfully offered twice as an experimental course over the past two years.

Semesters previously offered as an experimental course

Summer, 2019 and Summer, 2020

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (03/03/21 8:33 am): Enrollment was 7 in SS20, 21 in SS19. MT

Key: 4796

Preview Bridge

Course Change Request

Date Submitted: 02/23/21 5:43 pm

Viewing: **IS&T 4257 : Global Digital ~~Network~~ Economy**

File: 2030.1

Last edit: 02/26/21 9:13 am

Changes proposed by: cecq8z

Programs referencing this course

BUS&MS-BS: Business and Mgmt Systems BS

Other Courses referencing this course

In The Catalog Description:

ECON 4130 : Network Economy

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. CAT entry
11. Peoplesoft

Requested Effective Change Date	**Spring 2022** ~~08/14/2018~~
Department	Business and Information Technology
Discipline	Info Science & Technology (IS&T)
Course Number	4257
Title	**Global Digital** ~~Network~~ Economy
Abbreviated Course Title	**Global Digital** ~~Network~~ Economy

Approval Path

1. 02/24/21 1:05 am siauk: Approved for RINFSCTE Chair
2. 02/26/21 9:13 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

3. 02/26/21 11:56 am
Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

Catalog Description

Emerging Network/Internet economy, using traditional economic tools. Topics: production and reproduction cost of information, information as an "experience good, " versions of products, switching cost, lock-in effects, market adoption dynamics, first-mover advantage, intellectual property rights.

Prerequisites

Econ 1100 or Econ 1200.

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 change:

Person now teaching this course is not an economist. Claiming it is an economics course would affect our accreditation. Name change to avoid confusing this with the Economics course.

Semesters previously offered as an experimental course

Co-Listed Courses:

~~ECON 4130~~ - ~~Network Economy~~

Course Reviewer Comments

tibbettsmg (02/26/21 9:13 am): deadline past for affecting changes for FS 21. Effective date updated to Sp22. MT

Key: 2030

Preview Bridge

Course Change Request

Date Submitted: 02/15/21 3:02 pm

Viewing: **MECH ENG 2519 : Thermodynamics**

File: 765.5

Last approved: 10/07/17 3:29 am

Last edit: 02/15/21 3:16 pm

Changes proposed by: nisbett

Programs referencing this course

- NU ENG-BS: Nuclear Engineering BS
- 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
- AERO ENG 5539 : Modeling Across Scales in Computational Mechanics
- MECH ENG 3131 : Thermofluid Mechanics I
- MECH ENG 3521 : Applied Thermodynamics
- MECH ENG 3525 : Heat Transfer
- MECH ENG 4840 : Mechanical Instrumentation
- MECH ENG 5519 : Advanced Thermodynamics
- MECH ENG 5539 : Modeling Across Scales in Computational

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. CAT entry
11. Peoplesoft

Approval Path

1. 02/15/21 1:27 pm Marita Tibbetts (tibbettsmg): Rollback to Initiator
2. 02/15/21 3:10 pm David Bayless (djbkqf): Approved for RMECHENG Chair

Mechanics
NUC ENG 3221 : Reactor Fluid Mechanics

Requested Effective Change Date	**Fall 2021** ~~01/08/2018~~
Department	Mechanical & Aerospace Engineering
Discipline	Mechanical Engineering (MECH ENG)
Course Number	2519
Title	Thermodynamics
Abbreviated Course Title	Thermodynamics

3. 02/15/21 3:16 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
4. 02/26/21 8:46 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Oct 19, 2015 by nisbett (765.1)
2. Oct 7, 2017 by nisbett (765.3)

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; 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:

The course no longer requires computer programming, so the programming course prerequisite is not needed.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (02/15/21 1:27 pm): Rollback: Please resubmit now that Dr. Bayless is now listed as approver for ME Chair workflow. MT

tibbettsmg (02/15/21 3:16 pm): proposed change would not be an affecting change and can be considered for FS21. MT

Key: 765

Preview Bridge

Course Change Request

Date Submitted: 03/02/21 3:51 pm

Viewing: **MUSIC 3251 : From the Church to the Palace: Music ~~History and Analysis~~ of the Middle Ages and Renaissance ~~Music I~~**

File: 1968.8

Last approved: 05/24/16 4:57 am

Last edit: 03/03/21 2:18 pm

Changes proposed by: karmannc

Programs referencing this course

MUSIC-MI: Music Minor

PROPOSED: UCT - Medieval and Renaissance Studies

Requested Effective Change Date	**Spring 2022** ~~01/12/2016~~
Department	Arts, Languages, & Philosophy
Discipline	Music (MUSIC)
Course Number	3251
Title	**From the Church to the Palace: Music** ~~History and Analysis~~ of **the Middle Ages and Renaissance** ~~Music I~~
Abbreviated Course Title	**Music History to 1700** ~~Hist & Analysis of Mus I~~

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. CAT entry
11. Peoplesoft

Approval Path

1. 10/01/20 11:35 am
   Audra Merfeld-Langston (audram): Rollback to Initiator
2. 12/11/20 7:19 pm
   Audra Merfeld-

Catalog

Description

Langston (audram): Approved for RPHILOSO Chair
3. 12/14/20 10:43 am
Marita Tibbetts (tibbettsmg): Rollback to Initiator
4. 03/03/21 12:12 pm
Audra Merfeld-Langston (audram): Approved for RPHILOSO Chair
5. 03/03/21 2:21 pm
Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
6. 03/03/21 2:45 pm
Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair

History

1. May 24, 2016 by denises (1968.1)

Examines the development ~~General survey~~ of **Western art** ~~history of~~ music from **Ancient Greece** ~~Greek period~~ to **the** 18th century. **The lives of significant**

composers, as well as the political and social trends that influenced their careers, will also be studied. Score reading **required, but prior music reading experience is not necessary.** ~~required.~~

Prerequisites

History 1100, or English 1120, or Music 1150, or consent of instructor.

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 change:

This is a rebranding of the current MUSIC 3251 that includes a new title and a more detailed course description. The hope is that these changes will present a clearer picture of the course content and make it more attractive to students. It is also expected that the course would become an option for students pursuing the Department of History and Political Science's new certificate in Medieval and Renaissance studies (which is another reason for the title change).

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

audram (10/01/20 11:35 am): Rollback: Course title needs to be changed so that it is not gendered. I've asked the music faculty to work on this.

tibbettsmg (12/14/20 10:43 am): Rollback: There is more than 50% change in title and course content, requiring course to be submitted as a new EC (or New course proposal if required for a program). MT

tibbettsmg (03/03/21 2:18 pm): past deadline for FS21. Effective date changed to Sp22. Content of course not changing. Elaborating on content of course within the description. MT

Key: 1968

Preview Bridge

Course Change Request

Date Submitted: 03/03/21 11:47 am

Viewing: **MUSIC 3252 : Kings, Queens, and Guillotines: History ~~and Analysis~~ of Music in the Enlightenment and Beyond ~~II~~**

File: 1656.7

Last approved: 07/27/20 6:00 am

Last edit: 03/03/21 2:27 pm

Changes proposed by: karmannc

Programs referencing this course

MUSIC-MI: Music Minor

Other Courses referencing this course

In The Catalog Description:

HISTORY 3722 : History and Analysis of Music II

Requested Effective Change Date	**Spring 2022** ~~Fall 2020~~
Department	Arts, Languages, & Philosophy
Discipline	Music (MUSIC)
Course Number	3252
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. CAT entry
11. Peoplesoft

Approval Path

1. 09/30/20 8:45 am Audra Merfeld-Langston (audram): Rollback to Initiator
2. 10/01/20 11:35 am Audra Merfeld-

Kings, Queens, and Guillotines: History ~~and Analysis~~ of Music **in the Enlightenment and Beyond** ~~II~~

Abbreviated Course Title	**Music History 1700-pres** ~~Hist & Analysis Mus II~~

Catalog Description

Langston (audram): Rollback to Initiator

3. 12/11/20 7:22 pm Audra Merfeld-Langston (audram): Approved for RPHILOSO Chair
4. 12/14/20 10:44 am Marita Tibbetts (tibbettsmg): Rollback to Initiator
5. 03/03/21 12:13 pm Audra Merfeld-Langston (audram): Approved for RPHILOSO Chair
6. 03/03/21 2:28 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
7. 03/03/21 4:02 pm Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair

History

1. May 24, 2016 by denises (1656.1)
2. Jul 27, 2020 by karmannc (1656.5)

Examines the development ~~General survey~~ of **Western art** ~~history of~~ music from **the** ~~the~~ 18th century to **the** ~~the~~ present. **The lives of significant composers, as well as the political and social trends that shaped their careers, will also be studied. Score reading required, but prior music experience is not necessary.** ~~Score reading required.~~

Prerequisites

History 1200 or English 1120 or Music 1150 or consent of instructor.

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 change:

This is a rebranding of the current MUSIC 3252 that includes a new title and more detailed course description. The hope is that these changes will present a clearer picture of the course content and make it more attractive to students

Semesters previously offered as an experimental course

Co-Listed Courses:

HISTORY 3722 - History and Analysis of Music II

Course Reviewer Comments

audram (09/30/20 8:45 am): Rollback: Rolling back per your request.

audram (10/01/20 11:35 am): Rollback: Course title needs to be changed so that it is not gendered. I've asked the music faculty to work on this.

tibbettsmg (12/14/20 10:44 am): Rollback: There is more than 50% change in title and course content, requiring course to be submitted as a new EC (or New course proposal if required for a program). MT

tibbettsmg (03/03/21 2:27 pm): past deadline for FS21. Content of course not changing. Change is further elaborating on currently approved content within the description. MT

Key: 1656

Preview Bridge

Course Change Request

Date Submitted: 03/09/21 3:44 pm

Viewing: **NUC ENG 4257 : Two-phase Flow in Energy Systems - I**

File: 2294.1

Last edit: 03/12/21 12:10 pm

Changes proposed by: luksc

Programs referencing this course

MC ENG-BS: Mechanical Engineering BS

Requested Effective Change Date	**Fall 2021** ~~08/14/2018~~
Department	Mining & Nuclear Engineering
Discipline	Nuclear Engineering (NUC ENG)
Course Number	4257
Title	Two-phase Flow in Energy Systems - I
Abbreviated Course Title	Two-phase Flow Systems-I

Catalog Description

In Workflow

1. **NUC ENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/12/21 11:55 am
   AYODEJI Alajo (alajoa):
   Approved for NUC ENG Chair
2. 03/12/21 12:10 pm
   Marita Tibbetts (tibbettsmg):

Approved for CCC Secretary
3. 03/18/21 8:14 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

It is an introductory course for both undergraduate or graduate students who are interested in the application of two-phase flow in energy systems. It will acquaint students with governing equations for both single-phase and two-phase fluid flow, state-of-the-art analytical methods and various two-phase flow phenomena related to energy systems.

Prerequisites
Nuc Eng 3221 or Chem Eng **3101** ~~3100~~ or Mech Eng 3131.

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 change:
ChemEng 3100 has been replaced by Chem Eng 3101

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (03/12/21 12:10 pm): 4257 is not being offered for FS21, therefore not an affecting change. ChE3100 proposed to deactivate effective FS21. MT

Key: 2294

Preview Bridge

Course Change Request

Date Submitted: 03/03/21 1:52 pm

Viewing: **NUC ENG 4281 : Probabilistic Risk Assessment ŧ**

File: 453.1

Last edit: 03/18/21 8:13 am

Changes proposed by: schlegelj

Programs referencing this course

SFTYENG-CT: Safety Engineering

Requested Effective Change Date	**Spring 2022** ~~08/01/2014~~
Department	Mining & Nuclear Engineering
Discipline	Nuclear Engineering (NUC ENG)
Course Number	4281
Title	Probabilistic Risk Assessment ŧ
Abbreviated Course Title	Prob Risk Assessment ŧ

Catalog Description

In Workflow

1. **NUC ENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 10/16/20 2:01 pm Marita Tibbetts (tibbettsmg): Rollback to Initiator
2. 11/06/20 9:46 am Marita Tibbetts (tibbettsmg): Rollback to Initiator

3. 11/10/20 1:58 pm AYODEJI Alajo (alajoa): Approved for NUC ENG Chair
4. 11/10/20 2:47 pm Marita Tibbetts (tibbettsmg): Rollback to Initiator
5. 01/12/21 2:30 pm AYODEJI Alajo (alajoa): Approved for NUC ENG Chair
6. 03/03/21 9:42 am Marita Tibbetts (tibbettsmg): Rollback to Initiator
7. 03/12/21 11:55 am AYODEJI Alajo (alajoa): Approved for NUC ENG Chair
8. 03/12/21 12:11 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
9. 03/18/21 8:14 am Stephen Raper (sraper): Approved for

Engineering DSCC Chair

A **discussion** ~~study~~ of the techniques for ~~qualitative and quantitative~~ assessment of reliability, safety and risk associated with complex systems such as those encountered in ~~the~~ nuclear **power.** ~~power industry.~~ **Classification of accidents, fault tree analysis, consequences, figures of merit, and use of probabilistic risk analysis in regulation are discussed.** ~~Emphasis is placed on fault tree analysis.~~

Prerequisites

~~Nuc Eng 3205.~~

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:

Updating course title and description language in preparation for co-listing the course. "I" was removed from the course title, as there is no follow-up course at the undergraduate level.

Semesters previously offered as an experimental course

Co-Listed Courses:

ENG MGT 4281 - Probabilistic Risk Analysis

Course Reviewer

Comments

tibbettsmg (10/16/20 2:01 pm): Rollback: rollback for addt'l edits per your request. MT

tibbettsmg (11/06/20 9:46 am): Rollback: rollback for modification per request. MT

tibbettsmg (11/10/20 2:47 pm): Rollback: rollback to remove prereq. MT

tibbettsmg (03/03/21 9:42 am): Rollback: rollback to add co-list

tibbettsmg (03/12/21 12:11 pm): changed eff. date to Sp22. MT

sraper (03/17/21 2:43 pm): Changed to elective for majors.

sraper (03/18/21 8:13 am): Changed An to A

Key: 453

Preview Bridge

Course Change Request

Date Submitted: 01/19/21 4:06 pm

Viewing: NUC ENG 4428 : Reactor Laboratory I

File: 595.1

Last edit: 03/12/21 12:19 pm

Changes proposed by: schlegelj

Programs referencing this course

NU ENG-BS: Nuclear Engineering BS

Other Courses referencing this course

In The Prerequisites:

NUC ENG 4438 : Reactor Laboratory II

NUC ENG 5438 : Reactor Laboratory II

Requested Effective Change Date	**Spring 2022** ~~08/14/2018~~
Department	Mining & Nuclear Engineering
Discipline	Nuclear Engineering (NUC ENG)
Course Number	4428
Title	Reactor Laboratory I
Abbreviated Course Title	Reactor Laboratory I

In Workflow

1. **NUC ENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/12/21 11:55 am
   AYODEJI Alajo (alajoa):
   Approved for NUC ENG Chair
2. 03/12/21 12:12 pm
   Marita Tibbetts (tibbettsmg):

Approved for CCC Secretary

3. 03/18/21 8:14 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

Catalog Description

Acquaints the student with neutron flux measurement, reactor operation, control rod calibration, reactor power measurement and neutron activation experiments. Experiments with the thermal column and neutron beam port are also demonstrated.

Prerequisites

Nuc Eng 4312, 3205.

Field Trip Statement

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

Justification for change:

Adding content to the course

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (03/12/21 12:12 pm): changed eff. date to Sp22. MT

Key: 595

Preview Bridge

Course Change Request

Date Submitted: 03/03/21 1:53 pm

Viewing: **NUC ENG 5281 : Introduction to Probabilistic Risk Assessment ~~I~~**

File: 1601.1

Last edit: 03/12/21 12:13 pm

Changes proposed by: schlegelj

Programs referencing this course

NUNOPRO-CT: Nuclear Nonproliferation

Requested Effective Change Date	**Spring 2022** ~~08/01/2014~~
Department	Mining & Nuclear Engineering
Discipline	Nuclear Engineering (NUC ENG)
Course Number	5281
Title	**Introduction to** Probabilistic Risk Assessment ~~I~~
Abbreviated Course Title	**Intro** Prob Risk **Assess** ~~Assessment I~~

Catalog Description

In Workflow

1. **NUC ENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 10/16/20 1:58 pm Marita Tibbetts (tibbettsmg): Rollback to Initiator
2. 11/06/20 9:46 am Marita Tibbetts (tibbettsmg): Rollback to Initiator

3. 11/10/20 1:59 pm AYODEJI Alajo (alajoa): Approved for NUC ENG Chair
4. 03/03/21 9:42 am Marita Tibbetts (tibbettsmg): Rollback to Initiator
5. 03/12/21 11:55 am AYODEJI Alajo (alajoa): Approved for NUC ENG Chair
6. 03/12/21 12:13 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
7. 03/18/21 8:14 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

An introduction to advanced ~~A study of the~~ techniques for **assessing** ~~qualitative and quantitative assessment of~~ reliability, safety and risk **in** ~~associated with~~ complex **systems.** ~~systems such as those encountered in the nuclear power industry.~~ **Classification of initiating events, fault tree analysis, consequences, figures of merit, and use of probabilistic risk analysis in regulation are discussed using examples and applied through a simple case study.** ~~Emphasis is placed on fault tree analysis.~~

Prerequisites

~~Nuc Eng 3205.~~

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:

Course title and description updates in preparation for co-listing. "Introduction to" was added to the title because a 6000-level follow up "advanced" course is being considered.

Semesters previously offered as an experimental course

Co-Listed Courses:

SYS ENG 5281 - **Course Not Found**

Course Reviewer Comments

tibbettsmg (10/16/20 1:58 pm): Rollback: rollback for addt'l edits per request. MT

tibbettsmg (11/06/20 9:46 am): Rollback: rollback for modification per request. MT

tibbettsmg (03/03/21 9:42 am): Rollback: rollback to add co-list

tibbettsmg (03/12/21 12:13 pm): updated eff date to Sp22. MT

Key: 1601

Preview Bridge

Course Change Request

Date Submitted: 01/19/21 4:09 pm

Viewing: NUC ENG 5428 : Reactor Laboratory I

File: 617.1

Last edit: 03/12/21 12:14 pm

Changes proposed by: schlegelj

Programs referencing this course

NU ENG-BS: Nuclear Engineering BS

Requested Effective Change Date	**Spring 2022** ~~08/14/2018~~
Department	Mining & Nuclear Engineering
Discipline	Nuclear Engineering (NUC ENG)
Course Number	5428
Title	Reactor Laboratory I
Abbreviated Course Title	Reactor Laboratory I

Catalog Description

In Workflow

1. **NUC ENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/12/21 11:55 am
   AYODEJI Alajo (alajoa): Approved for NUC ENG Chair
2. 03/12/21 12:14 pm
   Marita Tibbetts (tibbettsmg):

Approved for CCC Secretary
3. 03/18/21 8:14 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

Acquaints the student with neutron flux measurement, reactor operation, control rod calibration, reactor power measurement and neutron activation experiments. Experiments with the thermal column and neutron beam port are also demonstrated.

Prerequisites
Nuc Eng 4312, 3205.

Field Trip Statement

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

Justification for change:
Adding course content

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (03/12/21 12:14 pm): Updated eff. date to Sp22. MT

Key: 617

Preview Bridge

Course Change Request

Date Submitted: 01/19/21 4:08 pm

Viewing: NUC ENG 5438 : Reactor Laboratory II

File: 1652.1

Last edit: 03/12/21 12:15 pm

Changes proposed by: schlegelj

Programs referencing this course

NU ENG-BS: Nuclear Engineering BS

Requested Effective Change Date	**Spring 2022** ~~08/14/2018~~
Department	Mining & Nuclear Engineering
Discipline	Nuclear Engineering (NUC ENG)
Course Number	5438
Title	Reactor Laboratory II
Abbreviated Course Title	Reactor Laboratory II

Catalog Description

In Workflow

1. **NUC ENG 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/12/21 11:55 am
   AYODEJI Alajo (alajoa): Approved for NUC ENG Chair
2. 03/12/21 12:15 pm
   Marita Tibbetts (tibbettsmg):

Approved for CCC Secretary
3. 03/18/21 8:14 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

A continuation of Nuclear Engineering 304 with experiments of a more advanced nature.

Prerequisites
Nuc Eng **4428 or Nuc Eng 5428.** ~~4428.~~

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 change:
Compatibility with Graduate Track Pathway students

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer

Comments

tibbettsmg (03/12/21 12:15 pm): updated eff. term to Sp22. MT

Key: 1652

Preview Bridge

Course Change Request

Date Submitted: 03/04/21 11:28 am

Viewing: **PSYCH 4340 ~~3340~~ : Assessment of Student Learning**

File: 4725.15

Last approved: 03/04/21 6:01 am

Last edit: 03/05/21 6:38 am

Changes proposed by: murray

Requested Effective Change Date	Spring **2022** ~~2021~~
Department	Psychological Science
Discipline	Psychology (PSYCH)
Course Number	**4340** ~~3340~~
Title	Assessment of Student Learning
Abbreviated Course Title	Assessment of Learning

Catalog Description

In Workflow

1. **RPSYCHOL 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/04/21 11:29 am
   Susan Murray (murray): Approved for RPSYCHOL Chair
2. 03/05/21 9:42 am
   Marita Tibbetts (tibbettsmg):

Approved for CCC Secretary
3. 03/05/21 9:44 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

History

1. Nov 23, 2020 by Devin Burns (burnsde)
2. Mar 3, 2021 by tibbettsmg (4725.4)
3. Mar 4, 2021 by tibbettsmg (4725.10)

Students will learn to evaluate assessments for validity and reliability. Students will develop formative and summative assessments aligned with learning outcomes. Writing quality rubrics and universal design will be introduced. Students will analyze data to make instructional decisions and learn to evaluate vendor assessments.

Prerequisites
Educ 1040.

Field Trip Statement

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

Elective for Majors	Yes

Justification for change:
Resubmit

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (03/05/21 6:38 am): Updated effective date to Spring 22. MT

Key: 4725

Preview Bridge

Course Change Request

Date Submitted: 03/11/21 9:49 am

Viewing: **PSYCH 6602 : Employee Affect and Behavior**

File: 4359.10

Last approved: 07/13/20 6:01 am

Last edit: 03/15/21 10:30 am

Changes proposed by: burnsde

Programs referencing this course

INORGPS-MS: Industrial Organizational Psychology MS

Requested Effective Change Date	**Spring 2022** ~~Fall 2020~~
Department	Psychological Science
Discipline	Psychology (PSYCH)
Course Number	6602
Title	Employee Affect and Behavior
Abbreviated Course Title	Affect and Behavior

Catalog Description

In Workflow

1. **RPSYCHOL 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/14/21 7:39 pm Susan Murray (murray): Approved for RPSYCHOL Chair
2. 03/15/21 10:31 am Marita Tibbetts (tibbettsmg):

Approved for CCC Secretary
3. 03/15/21 10:37 am
Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

History

1. Jan 26, 2017 by Nathan Weidner (weidnern)
2. Apr 2, 2018 by weidnern (4359.4)
3. Jul 13, 2020 by burnsde (4359.7)

Theory and research surrounding employee attitudes, emotions, and behaviors with an emphasis on antecedents and outcomes of: job satisfaction, engagement, organizational justice, trait and state positive and negative affect, organizational citizenship, counterproductive work, and proactive behaviors and the Implications for both employees and organizations.

Prerequisites

Psych 5020, and either preceded or accompanied by Psych 5202. ~~Psych 5020.~~

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 change:

Adding corequisite

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 4359

Preview Bridge

Course Change Request

Date Submitted: 03/10/21 4:13 pm

Viewing: PSYCH 6702 : Personnel Selection

File: 4081.6

Last approved: 01/13/17 3:15 am

Last edit: 03/10/21 4:24 pm

Changes proposed by: burnsde

Programs referencing this course

INORGPS-MS: Industrial Organizational Psychology MS

Requested Effective Change Date	**Spring 2022** ~~08/14/2017~~
Department	Psychological Science
Discipline	Psychology (PSYCH)
Course Number	6702
Title	Personnel Selection
Abbreviated Course Title	Personnel Selection

Catalog Description

In Workflow

1. **RPSYCHOL 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/10/21 4:19 pm Susan Murray (murray): Approved for RPSYCHOL Chair
2. 03/10/21 4:24 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

3. 03/11/21 8:44 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

History

1. Jun 30, 2014 by Lahne Black (lahne)
2. Jan 13, 2017 by weidnern (4081.1)

Current trends and methods in personnel recruitment and selection including classification, and promotion will be examined. An emphasis will be placed on legal and methodological considerations that can impact proper testing and assessment procedures. Cognitive abilities, personality, physical abilities, and other non-cognitive assessments will be discussed.

Prerequisites

Psych **5700, Psych 5202, Psych 5201.** ~~5700.~~

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:

Needed to add appropriate pre-reqs so students are prepared.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 4081

Preview Bridge

Course Change Request

Date Submitted: 03/05/21 10:52 am

Viewing: **SYS ENG 5212 : Introduction to Neural Networks and Applications**

File: 484.5

Last approved: 05/06/16 3:34 am

Last edit: 03/05/21 10:58 am

Changes proposed by: kte

Programs referencing this course

CMPINTS-CT: Computational Intelligence

FIN ENG-CT: Financial Engineering CT

CMPINTE-CT: Computational Intelligence CT

Other Courses referencing this course

In The Catalog Description:

ELEC ENG 5820 : Introduction to Neural Networks and Applications

Requested Effective Change Date	**Spring 2022** ~~01/12/2016~~
Department	Engineering Management and Systems Engineering
Discipline	Systems Engineering (SYS ENG)
Course Number	5212

In Workflow

1. **RENGMNGT 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. CAT entry
11. Peoplesoft

Approval Path

1. 03/05/21 10:55 am
   Suzanna Long (longsuz): Approved for RENGMNGT Chair
2. 03/05/21 10:58 am
   Marita Tibbetts

Title
Introduction to Neural Networks and Applications

Abbreviated Course Title: Intro to Neurl Netwk&App

Catalog Description

The course provides an introduction to basic neural network architectures and their applications. Students learn to construct neural networks and train them to solve engineering problems, specifically pattern recognition and function approximation. Mathematical analysis of network architectures, training algorithms and practical applications of neural nets.

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: **Yes** ~~No~~

Justification for change:

(tibbettsmg): Approved for CCC Secretary
3. 03/18/21 8:14 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

History
1. May 6, 2016 by dagli (484.1)

Changing Elec Eng course co-list number. The second digit classifies this course as a control systems course in Elec Eng, which it is not. The second digit of 8 is a general classification.

Semesters previously offered as an experimental course

Co-Listed Courses:

~~ELEC ENG 5370~~ - ~~Course Not Found~~

ELEC ENG 5820 - **Introduction to Neural Networks and Applications**

Course Reviewer Comments

Key: 484

Preview Bridge

Program Change Request

Date Submitted: 03/16/21 11:18 am

Viewing: AP MATH-BS : Applied Mathematics BS

File: 142.52

Last approved: 03/09/21 11:57 am

Last edit: 03/19/21 12:48 pm

Changes proposed by: prunnion

Catalog Pages Using this Program
Mathematics

Start Term
Fall 2021
Program Code
AP MATH-BS
Department
Mathematics & Statistics
Title
Applied Mathematics BS

Program Requirements and Description

In Workflow

1. **RMATHEMA 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. Kristy Giacomelli-Feys

Approval Path

1. 03/15/21 3:43 pm vsam: Approved for RMATHEMA Chair
2. 03/15/21 4:24 pm Marita Tibbetts (tibbettsmg): Rollback to Initiator
3. 03/15/21 5:24 pm vsam: Approved for RMATHEMA Chair
4. 03/16/21 8:16 am Marita Tibbetts (tibbettsmg): Rollback to Initiator
5. 03/16/21 11:23 am vsam: Approved for RMATHEMA Chair
6. 03/16/21 12:27 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
7. 03/19/21 12:48 pm Katie Shannon (shannonk): Approved for Sciences DSCC Chair

History

1. Apr 28, 2014 by Ilene Morgan (imorgan)
2. Apr 28, 2014 by Lahne Black (lahne)
3. Jun 13, 2014 by pantaleoa
4. Jun 13, 2014 by pantaleoa
5. Jul 21, 2015 by pantaleoa
6. Jul 21, 2015 by pantaleoa
7. Apr 25, 2016 by Ilene Morgan (imorgan)
8. Aug 12, 2016 by cladmin-bdietzler
9. Jun 14, 2019 by Paul Runnion (prunnion)
10. Jul 1, 2020 by Paul Runnion (prunnion)
11. Feb 3, 2021 by Paul Runnion (prunnion)
12. Mar 9, 2021 by Marita Tibbetts (tibbettsmg)
13. Mar 9, 2021 by Marita Tibbetts (tibbettsmg)

Bachelor of Science
Applied Mathematics

A minimum of 128 credit hours is required for a bachelor of science degree in applied mathematics. A minimum grade of “C” is required by the department in each course counted toward the math/stat requirement for the B.S. in applied mathematics. Moreover, the department requires that an average of at least two grade points per credit hour must be obtained for all courses taken within the department. These requirements for the B.S. degree are in addition to credit received for algebra, trigonometry, and basic ROTC.

The applied mathematics curriculum requires fifteen semester hours of technical electives, except where this requirement is reduced to compensate for extra requirements of emphasis areas, in addition to basic courses in chemistry or biology, physics, computer science, and economics. Two semesters of language and communication, ENGLISH 1160 or ENGLISH 3560, and either HISTORY 1300, HISTORY 1310, HISTORY 1200, or POL SCI 1200 are also required. Specific requirements for the bachelor’s degree are outlined in the sample program below.

Freshman Year

First Semester	Credits	Second Semester	Credits
MATH 1101	1	MATH 1215 or 1221[1]	4
MATH 1208 or 1214[1]	4-8	Science Requirement[5]	5
OR		COMP SCI 1500	3
MATH 1210 & MATH 1211		Language and Communication Requirement[3]	3
CHEM 1100	1	Basic ROTC (if elected)[4]	0
ENGLISH 1120	3		
Campus History Requirement[2]	3		
Language and Communication Requirement[3]	3		
Basic ROTC (if elected)[4]	0		
	15-19		15

Sophomore Year

First Semester	Credits	Second Semester	Credits
MATH 2222[1]	4	MATH 3304[1]	3
MATH 3108[1]	3	MATH 3109[1]	3
COMP SCI 1570	3	Statistics Requirement[1,6,7]	3
COMP SCI 1580	1	ECON 1100 or 1200	3
PHYSICS 1135	4	PHYSICS 2135	4
ENGLISH 1160[8]	3	Basic ROTC (if elected)[4]	0
Basic ROTC (if elected)[4]	0		
	18		16

Junior Year

First Semester	Credits	Second Semester	Credits
MATH 4209[1]	3	MATH 4211[1, 12]	3
Literature	3	Literature	3
Electives-Math or Stat[1,7,9]	3	Electives-Math or Stat[1,7,9]	3
Electives-Technical[10]	3	Electives-Technical[10]	3
Electives[13]	3	Electives[13]	3
	15		15

Senior Year

First Semester	Credits	Second Semester	Credits
Capstone Course[1,7,11]	3	Electives-Math or Stat[1,7,9]	3
Electives-Math or Stat[1,7,9]	3	Electives-Technical[10]	3
Electives-Technical[10]	6	Electives[13]	10
Electives[13]	6		
	18		16
Total Credits: 128-132			

[1] A minimum grade of “C” is required by the department in each course counted toward the math/stat requirement for the B.S. in

	applied mathematics. Moreover, the department requires that an average of at least two grade points per credit hour must be obtained for all courses taken within the department.
2	May be met by HISTORY 1200, HISTORY 1300, HISTORY 1310, or POL SCI 1200.
3	This requirement will be satisfied by either (1) six credits of Speech and Media Studies course work; or (2) a modern language approved by the advisor with competency at the level of second semester college/university course work or, with approval of the department, by completion of Level III of a foreign language in high school.
4	Basic ROTC may be elected in the freshman and sophomore years, but is not creditable toward a degree. Up to six credit hours of advanced ROTC may be credited as free electives towards a degree.
5	May be met by CHEM 1310 and CHEM 1319 or by BIO SCI 1113 and BIO SCI 1219.
6	May be met by STAT 3113, STAT 3115, or STAT 3117.
7	No course may be used to satisfy more than one degree requirement, except as otherwise noted.
8	May also be satisfied by ENGLISH 3560.
9	The student must choose two from the following five groups and then complete six hours in each of the chosen groups 1. MATH 5105, MATH 5106, MATH 5107, MATH 5108 2. MATH 5105, MATH 5215, MATH 4530 orMATH 5530, MATH 5351, MATH 5585 3. MATH 5222,MATH 5302, MATH 5325,MATH 5351, MATH 5483, MATH 5603, MATH 5604 4. STAT 5814, STAT 5643, STAT 5644, STAT 5346, STAT 5353, STAT 5755, STAT 5756 5. COMP SCI 3200, COMP SCI 5201, COMP SCI 5202, MATH 5603, MATH 5604, MATH 5737, STAT 5260, STAT 5346, STAT 5755, STAT 5756, STAT 5814.
10	Courses in biology, chemistry, computer science, economics, engineering, geology, mechanics, or physics approved by advisor. The general math curriculum requires 15 credit hours; actuarial science emphasis area, 12 credit hours; algebra/discrete math emphasis area, 15 credit hours; computational math emphasis area, 9 credit hours; statistics emphasis area, 12 credit hours.
11	The capstone experience for all applied mathematics majors (other than students completing the secondary education emphasis area) consists of a course chosen from the following list: MATH 4098 (three credits), MATH 4099 or STAT 4099 (three credits), MATH 5107, MATH 5215, MATH 5603, STAT 5346, STAT 5353, STAT 5755, or STAT 5756.
12	**Math 4211 is not required for students earning the Statistics emphasis area.**
13	**Sufficient free electives to earn a minimum of 128 credit hours.**

Emphasis Areas at the Bachelor of Science Level

Note: It is not required that students complete an emphasis area to obtain the bachelor of science degree in applied mathematics. The emphasis area requirements often specify most, if not all, of the electives in mathematics, statistics and computer science as well as many technical or free electives.

Actuarial Science Emphasis Area

Required courses:

STAT 5643	Probability And Statistics	3
STAT 5644	Mathematical Statistics	3
ECON 1100	Principles Of Microeconomics	3
ECON 1200	Principles Of Macroeconomics	3
ECON 2200	Intermediate Macroeconomic Theory	3
MATH 5737	Financial Mathematics	3
And six hours from:		6
STAT 5814	Applied Time Series Analysis	3

STAT 5346	Regression Analysis	3
STAT 5353	Statistical Data Analysis	3
STAT 5755	Statistical Models in Actuarial Science	3
STAT 5756	Statistical Models for Life Contingencies	3

In addition, the student must pass the first actuarial science exam. Note that the capstone requirement is included in, not separate from, this list of courses.
When selecting a 3000-level statistics course to satisfy the major requirements, it is recommended that students pursuing an Actuarial Science emphasis select Stat 3117.

Algebra/Discrete Mathematics Emphasis Area

Required courses:

MATH 5105	Modern Algebra I	3
MATH 5106	Modern Algebra II	3
or MATH 6105	Finite Fields And Applications	
MATH 5107	Combinatorics And Graph Theory (Satisfies Capstone requirement)	3
MATH 5108	Linear Algebra II	3
STAT 5643	Probability And Statistics	3
Select one of the following:		3
STAT 5644	Mathematical Statistics	3
COMP SCI 2200	Theory of Computer Science	3
COMP SCI 3200	Introduction To Numerical Methods	3
COMP SCI 5200	Analysis Of Algorithms	3

Computational Mathematics Emphasis Area

Required courses:

STAT 5353	Statistical Data Analysis (Satisfies Capstone requirement)	3
STAT 5346	Regression Analysis	3
COMP SCI 1575	Data Structures	3
COMP SCI 3200	Introduction To Numerical Methods	3
Select three of the following:		
MATH 5302	Intermediate Differential Equations	3
MATH 5325	Partial Differential Equations	3
MATH 5603	Methods of Applied Mathematics	3
MATH 5604	Introduction to Numerical Methods for Differential Equations	3
Select one of the following:		3
COMP SCI 5201	Object-Oriented Numerical Modeling I	3
COMP SCI 5402	Introduction to Data Mining	3
MECH ENG 5139	Computational Fluid Dynamics	3
AERO ENG 5139	Computational Fluid Dynamics	3

MECH ENG 5212	Introduction to Finite Element Analysis	3
AERO ENG 5212	Introduction to Finite Element Analysis	3
MECH ENG 5830	Applied Computational Methods	3
AERO ENG 5830	Applied Computational Methods	3

Applied Analysis Emphasis Area

Required:

COMP SCI 3200	Introduction To Numerical Methods	3
and two of groups 3, 4, and 5 under Mathematics and Statistics electives (plus the Capstone requirement) must be satisfied,		
and choose Technical Electives and Free Electives to satisfy one of the following two options:		

Engineering Option

Required courses:

CIV ENG 2200	Statics	3
CIV ENG 2210	Mechanics Of Materials	3
Select one of the following:		
MECH ENG 2350	Engineering Mechanics-Dynamics	
MECH ENG 2360	Dynamics	3
Select three of the following:		9
Courses, which have any of the listed courses as prerequisites, may also be used to fulfill this requirement.		
AERO ENG 3613	Aerospace Mechanics I	3
AERO ENG 5313	Intermediate Dynamics of Mechanical and Aerospace Systems	3
AERO ENG 5614	Spaceflight Mechanics	3
CHEM ENG 2100	Chemical Engineering Material & Energy Balances	4
CHEM ENG 2110	Chemical Engineering Thermodynamics I	3
ELEC ENG 2800	Electrical Circuits	3
MECH ENG 3313	Machine Dynamics	3
MECH ENG 2519	Thermodynamics	3
or MECH ENG 2527	Thermal Analysis	
MECH ENG 5131	Intermediate Thermofluid Mechanics *	3
NUC ENG 3103	Interactions Of Radiation With Matter	3
NUC ENG 4203	Reactor Physics I	3
PET ENG 4621	Fundamentals Of Petroleum Reservoir Simulation	3
CIV ENG 3330	Engineering Fluid Mechanics	3
or NUC ENG 3221	Reactor Fluid Mechanics	
or MECH ENG 3131	Thermofluid Mechanics I	
CIV ENG 5207	Computer Methods of Structural Analysis	3
CIV ENG 5333	Intermediate Hydraulic Engineering	3
ELEC ENG 5370	Introduction to Neural Networks and Applications	3

MECH ENG 5307	Vibrations I	3
MECH ENG 5211	Introduction To Continuum Mechanics	3
MECH ENG 5234	Stability of Engineering Structures *	3
MECH ENG 5254	Variational Formulations Of Mechanics Problems	3
GEO ENG 4115	Statistical Methods in Geology and Engineering	3
GEOPHYS 3221	Potential Field Theory	3

* Courses with an asterisk (*) are co-listed in more than one department.

Physics Option

Required courses:

PHYSICS 2311	Modern Physics I	3
PHYSICS 3311	Modern Physics II	3
And take at least nine additional hours of physics courses at the 2000 level or above.		9

Note that the requirements for a minor in physics will be satisfied with this option.

Secondary Education Emphasis Area

You may earn a B.S. degree in applied mathematics from Missouri S&T and certification to teach at the secondary level in the schools of Missouri with this emphasis area program. This program can be completed in four academic years.

Students interested in this emphasis area should consult with the advisor for mathematics education majors in the mathematics and statistics department.

In order to successfully complete this emphasis area, students must ~~maintain a cumulative GPA of at least 2.75 and~~ attain at least a 3.0 GPA in all mathematics, statistics, and education **courses as required by the Missouri Department of Elementary and Secondary Education for teacher certification.** ~~courses.~~ Current Missouri S&T or transfer students who wish to pursue this emphasis area must meet these GPA requirements to be accepted into the program. Students must also meet all requirements listed **on the** ~~under~~ teacher education **website.** ~~in the catalog.~~ Students who do not meet all the teacher certification requirements will not be eligible for the secondary education emphasis area, even if they have completed all coursework.

A degree in this emphasis area requires 128 credit hours. The required courses and a sample four-year program are provided below. (A minimum grade of "C" is required by the department in all mathematics and statistics courses counted toward this degree. No course may be used to satisfy more than one degree requirement, except as otherwise noted.)

Freshman Year			
First Semester	**Credits**	**Second Semester**	**Credits**
MATH 1101	1	MATH 1215 or 1221	4
MATH 1208 or 1214	4 or 8	BIO SCI 1113	3
OR		BIO SCI 1219 or CHEM 1319 (Science Lab Requirement)[1]	1
MATH 1210 & MATH 1211		PSYCH 1101	3
CHEM 1100	1	EDUC 1164	2
ENGLISH 1120	3	EDUC 1174	2
HISTORY 1300 or 1310	3		

EDUC 1040	2		
EDUC 1104	1		
	15-19		15

Sophomore Year

First Semester	Credits	Second Semester	Credits
MATH 2222	4	MATH 3304	3
MATH 3108	3	MATH 3109	3
COMP SCI 1500	3	ENGLISH 1160	3
PHYSICS 1135	4	PHYSICS 2135	4
SP&M S 1185	3	PSYCH 3310	3
	17		16

Junior Year

First Semester	Credits	Second Semester	Credits
MATH 4209	3	MATH 4211	3
STAT 3113, or 3115, or 3117	3	MATH 4530	3
ECON 1100 or 1200	3	EDUC 3280	3
ENGLISH 3170	3	**EDUC 3340**	**3**
EDUC 3216	3	Fine Art Elective[2]	3
EDUC 3298	**1**	PSYCH 2300 or EDUC 2102	3
	16		18

Senior Year

First Semester	Credits	Second Semester	Credits
Electives-Math or Stat[4]	6	EDUC 4298 & EDUC 4299[3]	13
PSYCH 4310 or EDUC 2310	3		
POL SCI 1200	3		
Literature	3		
~~Electives~~	~~2~~		
Electives[6]	**3**		
	18		13
Total Credits: 128-132			

1	May be met by BIO SCI 1219 or CHEM 1319
2	Any three-hour course from the areas of foreign language, music, theater, philosophy or art.
3	Student Teaching satisfies the capstone requirement for students completing this emphasis area.
4	Any two three-hour courses from the following list with the approval of the mathematics education advisor. MATH 5105, MATH 5106, MATH 5107, MATH 5108, MATH 5215, MATH 5222, MATH 5302, MATH 5325, MATH 5351, MATH 5483, MATH 5585, STAT 5643, STAT 5644, STAT 5346, STAT 5353, COMP SCI 3200, COMP SCI 5201, COMP SCI 5202, MATH 5737.
5	COMP SCI 1570 if not transferred in will require COMP SCI 1580, requiring one extra credit hour which will count either towards technical electives or free electives.

6	**Sufficient free electives to earn a minimum of 128 credit hours.**

Statistics Emphasis Area

Required courses:

STAT 5643	Probability And Statistics	3
STAT 5644	Mathematical Statistics	3
STAT 5346	Regression Analysis [2]	3
STAT 5353	Statistical Data Analysis (Satisfies Capstone requirement) [1]	3
Select one of the following:		6
~~BIO SCI 2223~~	~~General Genetics~~	~~3~~
~~COMP SCI 3200~~	~~Introduction To Numerical Methods~~	~~3~~
STAT 5260	Statistical Data Analysis Using SAS	3
STAT 5814	Applied Time Series Analysis	3
~~And complete either A or B:~~		~~6~~
or another approved computational statistics course		
~~MATH 5215~~	~~Introduction To Real Analysis~~	~~3~~
~~MATH 5351~~	~~Introduction To Complex Variables~~	~~3~~
Complete the following CS courses (in addition to those required for all Applied Mathematics majors):		
~~MATH 5107~~	~~Combinatorics And Graph Theory~~	~~3~~
~~MATH 5108~~	~~Linear Algebra II~~	~~3~~
~~MATH 5603~~	~~Methods of Applied Mathematics~~	~~3~~
COMP SCI 1200	**Discrete Mathematics for Computer Science [2]**	**3**
COMP SCI 1575	**Data Structures [2]**	**3**
COMP SCI 1585	**Data Structures Laboratory [2]**	**1**
COMP SCI 2300	**File Structures and Introduction to Database Systems [2]**	**3**
COMP SCI 2500	**Algorithms [2]**	**3**
and one of the following two courses:		
COMP SCI 5400	**Introduction To Artificial Intelligence [2]**	**3**
COMP SCI 5402	Introduction to Data Mining [2]	3

1	**Satisfies Capstone requirement.**
2	**Satisfies the requirements for a minor in Computer Science (when combined with COMP SCI 1500, COMP SCI 1570, and COMP SCI 1580 which are required for all Applied Mathematics majors).**

Justification for request

First, with regards to footnote 13 on the main degree, the intent of the previous degree change which added the option of the new Math 1210/1211 instead of Math 1214 was that students taking Math 1210 and 1211 would simply be required to take four fewer free electives. (Note that many other degree programs may choose to not adjust free electives - this is simply an internal decision made within the Department of Mathematics and Statistics for our majors.) I'm hopeful that somebody who knows their

way around this system better than I do can "massage" it and make it show that only 128 hours is required regardless.

Most changes on this DC form are centered around the substantial changes to the statistics emphasis area. The old version of the emphasis was really designed more for students who intended to pursue graduate study than for students who intended to go to industry. We are making these changes so that the degree is more of an applied degree leading toward industry employment. Should a student wish to pursue graduate studies, the courses no longer listed as options would in almost all cases be available to students as part of a graduate program, and thus this should not disadvantage any students in any way whatsoever. Furthermore, due to the increasing importance of programming, database, and machine learning concepts in statistics, we have elected to build in a computer science minor for these students. Students completing this degree will be extraordinarily well prepared for employment in a wide variety of industries or for graduate study.

On the secondary education side, we are making the changes requested by the education department. We have the same issue with the total number of credits (caused by 1210-1211) that we do with the general degree, so I'm hopeful that somebody who knows their way around this system better than I do can again "massage" it and make it show that a minimum of 128 hours is required regardless.
Supporting Documents
Course Reviewer Comments
tibbettsmg (03/15/21 4:24 pm): Rollback: rollback for additional changes in the secondary education emphasis area. MT
tibbettsmg (03/16/21 8:16 am): Rollback: Educ 3001 should be Educ 3298. mt
tibbettsmg (03/16/21 12:23 pm): modified formatting. MT
shannonk (03/17/21 2:46 pm): Made changes to elective hours first semester senior year since BIO SCI 1219 is now 1 hour instead of 2. In consultation with Paul Runnion
shannonk (03/19/21 12:48 pm): now labs have same number of hours so no extra electives needed if Chem lab is taken instead of Bio

Key: 142

Program Change Request

Date Submitted: 03/11/21 11:43 am

Viewing: CH ENG-BS : Chemical Engineering BS

File: 150.82

Last approved: 03/03/20 1:41 pm

Last edit: 03/11/21 11:55 am

Changes proposed by: luksc

Catalog Pages Using this Program
Chemical & Biochemical Engineering

Start Term
Fall **2021** ~~2020~~
Program Code
CH ENG-BS
Department
Chemical and Biochemical Engineering
Title
Chemical Engineering BS

Program Requirements and Description

In Workflow

1. **RCHEMENG 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. Kristy Giacomelli-Feys

Approval Path

1. 03/09/21 3:14 pm Hu Yang (huyang): Rollback to Initiator
2. 03/09/21 3:31 pm Hu Yang (huyang): Approved for RCHEMENG Chair
3. 03/09/21 3:54 pm Marita Tibbetts (tibbettsmg): Rollback to Initiator
4. 03/11/21 11:48 am Hu Yang (huyang): Approved for RCHEMENG Chair
5. 03/11/21 11:56 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
6. 03/18/21 8:14 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Mar 18, 2014 by Lahne Black (lahne)
2. May 2, 2014 by Lahne Black (lahne)
3. Jan 30, 2015 by kleb6b
4. Jul 15, 2015 by pantaleoa
5. Jul 15, 2015 by pantaleoa
6. Nov 18, 2015 by marlene
7. Mar 7, 2016 by Daniel Forciniti (forcinit)
8. Mar 27, 2017 by Daniel Forciniti (forcinit)
9. May 3, 2018 by Daniel Forciniti (forcinit)
10. May 7, 2018 by Brittany Parnell (ershenb)
11. May 7, 2018 by Brittany Parnell (ershenb)
12. May 7, 2018 by Brittany Parnell (ershenb)
13. Jul 3, 2018 by Brittany Parnell (ershenb)
14. Nov 2, 2018 by Jee C. Wang (jcwang)
15. Jan 29, 2019 by Jee C. Wang (jcwang)
16. Jan 30, 2019 by Brittany Parnell (ershenb)
17. Jan 30, 2019 by Brittany Parnell (ershenb)
18. Mar 3, 2020 by Brittany Parnell (ershenb)

Bachelor of Science
Chemical Engineering

Entering freshmen desiring to study chemical engineering will be admitted to the Foundational Engineering and Computing Program. They will be permitted, if they wish, to state a chemical engineering preference, which will be used as a consideration for available freshman departmental scholarships. The focus of the Foundational Engineering and Computing 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.

For the bachelor of science degree in chemical engineering a minimum of 129 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 chemical 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 ENGLISH 1120. The history course is to be selected from HISTORY 1200, HISTORY 1300, HISTORY 1310, or POL SCI 1200. The economics course may be either ECON 1100 or ECON 1200. The humanities course must be selected and meets the requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog.
2. Depth requirement. Three credit hours must be taken in humanities or social sciences at the 1000 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 3000 level or above. 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 and meets the requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog and may include one communications course in addition to ENGLISH 1120.
4. Any specific departmental requirements in the general studies area must be satisfied and meets the requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog.
5. Special topics and special problems and honors seminars are allowed only by petition to and approval by the student's department chairman.

The chemical 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 are presented and discussed through classroom and laboratory instruction.

Freshman Year			
First Semester	**Credits**	**Second Semester**	**Credits**
FR ENG 1100	1	MECH ENG 1720	3
CHEM 1310	4	CHEM 1320	3
CHEM 1319	1	**COMP SCI 1500**	**3**
ENGLISH 1120	3	**OR**	
HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3	COMP SCI 1972 & COMP SCI 1982	
MATH 1214	4	~~COMP SCI 1982, or 1981, or 1580~~[7]	~~1~~
CHEM 1100	1	MATH 1215	4
		PHYSICS 1135	4
	17		17
Sophomore Year			
First Semester	**Credits**	**Second Semester**	**Credits**

CHEM ENG 2100[1]	4	CHEM ENG 2110[1]	3
CHEM ENG 2300	1	CHEM ENG 2310[2]	1
CHEM 2210	3	Science Elective[5]	4
MATH 2222	4	MATH 3304	3
PHYSICS 2135	4	STAT 3113	3
		Humanities and Social Sciences Elective[4]	3
	16		17

Junior Year

First Semester	Credits	Second Semester	Credits
CHEM ENG 3101	4	CHEM ENG 3131	3
CHEM ENG 3111	3	CHEM ENG 3141	3
CHEM ENG 3120[1]	3	CHEM ENG 3150	3
ECON 1100 or 1200	3	~~ENGLISH 1160 or 3560~~	~~3~~
Upper level Humanities or Social Science Elective[4]	3	SP&M S 1185	3
		ENGLISH 3560	**3**
	16		15

Senior Year[3]

First Semester	Credits	Second Semester	Credits
CHEM ENG 4091	3	CHEM ENG 4097[2]	3
CHEM ENG 4101[2]	3	CHEM ENG 4130[2]	3
CHEM ENG 4110	3	CHEM ENG 5XXX-Chem Eng Elective[6]	3
CHEM ENG 4241	3	Chem Eng 5xxx --Chem Eng Elective[6]	3
CHEM ENG 5XXX-Chem Eng Elective[6]	3	Chem Eng 5xxx -Chem Eng Elective[6]	3
	15		15
Total Credits: 128			

Note: The minimum number of hours required for a degree in chemical engineering is 129.

A cumulative grade point average of 2.50 or better and a “C” or better in CHEM 1310, CHEM 1319, CHEM 1320, MATH 1214, MATH 1215 and PHYSICS 1135 are required to be admitted into the chemical engineering major.

1	A grade of "C" or better is required in CHEM ENG 2100 & CHEM ENG 2110 in order to enroll in Chem Eng 3120 .
2	Communications emphasized course (See bachelor of science degree, general education communications requirement).
3	Chemical engineering majors are encouraged to take the fundamentals of engineering exam prior to graduation. It is the first step toward becoming a registered professional engineer.
4	Must meet the requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog. The prerequisites for the upper level course must be completed with a passing grade.
5	CHEM 2510, or CHEM 4610 and CHEM 4619, or BIO SCI 2213 and BIO SCI 2219, or CHEM 2220 and CHEM 2219, or Bio Sci 3313 and Bio Sci 3319, or CHEM 3420 and CHEM 3459.
6	A minimum of 12 cr. hr. from any Chem Eng 5xxx and any class from the approved list published on the Chemical Engineering web site but only 3 cr. hr. of CHEM ENG 4000, CHEM ENG 4099 or Chem Eng 4099H. Students may have no more than three hours from approved out-of-department electives.

7 The programming elective will consist of a lecture and lab combination, and may be selected from COMP SCI 1971/COMP SCI 1981, COMP SCI 1972/COMP SCI 1982, or COMP SCI 1570/COMP SCI 1580. Note that COMP SCI 1570/COMP SCI 1580 requires one more credit hour than the other option. The lecture component must be completed with a grade of "C" or better.

Chemical Engineering
Biochemical Engineering Emphasis

Freshman Year			
First Semester	**Credits**	**Second Semester**	**Credits**
FR ENG 1100	1	MECH ENG 1720	3
CHEM 1310	4	**COMP SCI 1500**	**3**
CHEM 1319	1	**OR**	
ENGLISH 1120	3	COMP SCI 1972 & COMP SCI 1982	
HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3	~~COMP SCI 1982, or 1981, or 1580~~[6]	~~1~~
MATH 1214	4	CHEM 1320	3
CHEM 1100	1	MATH 1215	4
		PHYSICS 1135	4
	17		17
Sophomore Year			
First Semester	**Credits**	**Second Semester**	**Credits**
CHEM ENG 2100[1]	4	CHEM ENG 2110[1]	3
CHEM ENG 2300	1	CHEM ENG 2310[2]	1
CHEM 2210	3	STAT 3113	3
MATH 2222	4	Science Elective[5]	4
PHYSICS 2135	4	MATH 3304	3
		ECON 1100 or 1200	3
	16		17
Junior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
CHEM ENG 3101	4	CHEM ENG 3131	3
CHEM ENG 3111	3	CHEM ENG 3141	3
CHEM ENG 3120[1]	3	CHEM ENG 3150	3
SP&M S 1185	3	~~ENGLISH 1160 (or English 3560)~~	~~3~~
Science Elective[5]	4	Science Elective[5]	4
		ENGLISH 3560	**3**
	17		16
Senior Year[3]			
First Semester	**Credits**	**Second Semester**	**Credits**
CHEM ENG 4091	3	CHEM ENG 4097[2]	3

CHEM ENG 4110	3	CHEM ENG 4210	3
CHEM ENG 5250	3	CHEM ENG 4220	3
CHEM ENG 4201	3	CHEM ENG 4241	3
Upper Level Humanities or Social Sciences Elective[4]	3	Humanities or Social Science Elective[4]	3
	15		15
Total Credits: 130			

Note: The minimum number of hours required for a degree in chemical engineering with an emphasis in biochemical engineering is 131.

A cumulative grade point average of 2.50 or better and a “C” or better in CHEM 1310, CHEM 1319, CHEM 1320, MATH 1214, MATH 1215 and PHYSICS 1135 are required to be admitted into the chemical engineering major.

1	A grade of "C" or better is required in CHEM ENG 2100 & CHEM ENG 2110 in order to enroll in CHEM ENG 3120.
2	Communications emphasized course (See bachelor of science degree, general education communications requirement).
3	Chemical engineering majors are encouraged to take the fundamentals of engineering exam prior to graduation. It is the first step toward becoming a registered professional engineer.
4	Must meet the requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog. The prerequisites for the upper level course must be completed with a passing grade.
5	A minimum of 12 credit hours in Science Electives are required. Select three courses from CHEM 2220 CHEM 4610, CHEM 4620, BIO SCI 2213, BIO SCI 3313, and BIO SCI 4323; and a minimum of two laboratory courses from CHEM 2229 or CHEM 2219 CHEM 4619, BIO SCI 2219, BIO SCI 3319, and BIO SCI 4329.
6	The programming elective consists of a lecture and lab combination, and may be selected from COMP SCI 1971/COMP SCI 1981, COMP SCI 1972/COMP SCI 1982, or COMP SCI 1570/COMP SCI 1580. Note that COMP SCI 1570/COMP SCI 1580 requires one more credit hour than the other options. The lecture component must be completed with a grade of "C" or better.

Justification for request

Changes in Chemistry and Computer Science offerings; English 1160 was dropped because the students lack technical writing skills

Supporting Documents

Course Reviewer Comments

hy57v (03/09/21 3:14 pm): Rollback: As per your request

tibbettsmg (03/09/21 3:54 pm): made formatting change to plan of study grid. MT

tibbettsmg (03/09/21 3:54 pm): Rollback: rollback for additional changes.

tibbettsmg (03/11/21 11:55 am): updated formatting. mt

Key: 150

Program Change Request

Date Submitted: 03/11/21 2:23 pm

Viewing: HIST-BA : History BA

File: 157.29

Last approved: 01/30/20 3:27 pm

Last edit: 03/11/21 2:36 pm

Changes proposed by: dewittp

Catalog Pages Using this Program
242: history-bs
242: history-bs
History

Start Term
Fall **2021** ~~2020~~
Program Code
HIST-BA
Department
History and Political Science
Title
History BA

Program Requirements and Description

In Workflow

1. **RHISTORY 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. Kristy Giacomelli-Feys

Approval Path

1. 03/10/21 9:56 am Michael Bruening (bruening): Rollback to Initiator
2. 03/10/21 10:02 am Michael Bruening (bruening): Approved for RHISTORY Chair
3. 03/10/21 11:36 am Marita Tibbetts (tibbettsmg): Rollback to Initiator
4. 03/11/21 2:33 pm Michael Bruening (bruening): Approved for RHISTORY Chair
5. 03/11/21 2:36 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
6. 03/11/21 2:38 pm Petra Dewitt (dewittp): Approved for Arts &

Humanities DSCC Chair

History

1. Aug 6, 2014 by Lahne Black (lahne)
2. Jul 21, 2015 by pantaleoa
3. Jun 27, 2016 by Petra Dewitt (dewittp)
4. Mar 27, 2017 by Petra Dewitt (dewittp)
5. Jun 18, 2018 by Shannon Fogg (sfogg)
6. Jan 30, 2020 by Petra Dewitt (dewittp)

Bachelor of Arts
History

(In addition to general requirements for bachelor of arts degree.)

HISTORY 1300	American History To 1877	3
HISTORY 1310	American History Since 1877	3
HISTORY 4790	Historiography	3
HISTORY 2791	Historical Research Methods	3
2 American History Electives		6
2 European History Electives		6
2 History Electives		6
Total Credits		30

Note: History majors are also required to complete HISTORY 1100 and HISTORY 1200 as part of the general education requirements for the B.A. In addition, 9 hours of the 30 major hours must be taken at the 3000 or 4000 level.

Note: History majors interested in graduate or professional school should take HISTORY 4097 as independent research under the guidance of a faculty member in a short period (one semester).

Note: History majors must complete an experiential learning requirement. They can meet this requirement by taking HISTORY 4085 or HISTORY 4097 or study abroad, among other options, in consultation with their advisor.

Note: Entering students will normally take ENGLISH 1120 either semester of the first year.

Secondary Education Emphasis Area

You may earn a B.A. degree in history from Missouri S&T and certification to teach in the schools of Missouri. This program may be completed in four academic years and student teaching is arranged with public schools **anywhere in** ~~within 30 miles of~~ the **state.** ~~Rolla campus.~~

Students interested in the certification program should consult with the advisor for history/education majors in the department of history and political science for requirements particular to those interested in this degree. Students should process a change of major form to designate history with an emphasis area of secondary education.

History students must complete 127 credit hours, including requirements for teacher education listed in this catalog. A minimum grade of "C" is required by the department in all history and political science courses counted towards this degree. Students must take the following courses:

Communication Skills: 9 hours		
ENGLISH 1120	Exposition And Argumentation	3
ENGLISH 1160	Writing And Research	3
SP&M S 1185	Principles Of Speech	3
Humanities: 12 hours with at least one course from the first three areas		
Art or Music or Theater Appreciation		
Philosophy		
Literature		
Foreign Language		
ETYM 4306	Introduction To Etymology	3
Social Sciences: 18 hours		
POL SCI 1200	American Government	3
Political Science Elective Must be 2XXX or above		3
ECON 1100	Principles Of Microeconomics	3
or ECON 1200	Principles Of Macroeconomics	
PSYCH 1101	General Psychology	3
PSYCH 4600	Social Psychology	3
HISTORY 2110	World Regional Geography	3
Natural Sciences: 7 hours = 2 courses and 1 lab		
One course in Physics or Chemistry or Geology and one course in Biology		
One laboratory in any of the above science courses		
Mathematics: 3 hours		
MATH 1120	College Algebra (or higher)	3-5
or MATH 1103	Fundamentals Of Algebra	
or MATH 1140	College Algebra	
Clinical Experience: 16 hours		
EDUC 1104	Teacher Field Experience I	1
EDUC 1164	Teacher Field Experience II	2
EDUC 3298	**Course EDUC 3298 Not Found**	**3**
EDUC 4299	Student Teaching	12

Professional Requirements: 26 hours		
EDUC 1040	Perspectives In Education	2
EDUC 1174	School Organization and Administration For Teachers	2
EDUC 2310	**Education Of The Exceptional Child**	**3**
EDUC 3216	Instructional Literacy in the Content Area	3
EDUC 3280	Instructional Strategies in the Content Area	3
EDUC 3340	**Assessment of Student Learning**	**3**
EDUC 4298	Student Teaching Seminar	1
ENGLISH 3170	Teaching And Supervising Reading and Writing	3
PSYCH 2300/EDUC 2102	Educational Psychology	3
~~PSYCH 4310/EDUC 4310~~	~~Psychology Of The Exceptional Child~~	~~3~~
PSYCH 3310	Developmental Psychology	3
History Requirements: 36 hours		
HISTORY 1100	Early Western Civilization	3
HISTORY 1200	Modern Western Civilization	3
HISTORY 1300	American History To 1877	3
HISTORY 1310	American History Since 1877	3
HISTORY 2791	Historical Research Methods	3
HISTORY 4790	Historiography	3
American History Electives		6
European History Electives		6
History Electives		6

Justification for request

Updates owing to changes in Education courses and certification program.Removed co-list of Psych 4310 because not co-listed on Educ 2310 CC form. Removed 3001 course to replace with EDUC 3298 (CC form at same meeting).

Supporting Documents

Course Reviewer Comments

bruening (03/10/21 9:56 am): Rollback: Remove Psych crosslist for Educ 2310

tibbettsmg (03/10/21 11:36 am): Rollback: EC's shouldn't be listed in program requirements. MT

tibbettsmg (03/11/21 2:36 pm): Educ 3298 is a new course proposal in workflow. MT

Key: 157

Program Change Request

Date Submitted: 02/16/21 4:34 pm

Viewing: MC ENG-BS : Mechanical Engineering BS

File: 86.46

Last approved: 10/08/20 3:05 pm

Last edit: 02/17/21 8:17 am

Changes proposed by: nisbett

Catalog Pages Using this Program
Mechanical Engineering

Start Term
Fall **2021** ~~2020~~
Program Code
MC ENG-BS
Department
Mechanical & Aerospace Engineering
Title
Mechanical Engineering BS

Program Requirements and Description

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. Kristy Giacomelli-Feys

Approval Path

1. 02/16/21 4:48 pm David Bayless (djbkqf): Approved for RMECHENG Chair
2. 02/17/21 8:17 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 02/26/21 8:46 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Feb 24, 2014 by J. Keith Nisbett (nisbett)
2. Aug 6, 2014 by J. Keith Nisbett (nisbett)
3. Jul 21, 2015 by pantaleoa

4. May 3, 2018 by J. Keith Nisbett (nisbett)
5. Jun 14, 2019 by J. Keith Nisbett (nisbett)
6. Mar 3, 2020 by Brittany Parnell (ershenb)
7. Oct 8, 2020 by Crystal Wilson (wilsoncry)

Bachelor of Science
Mechanical Engineering

Entering freshmen desiring to study mechanical engineering will be admitted to the Foundational Engineering and Computing Program. They will, however, be permitted, if they wish, to state a mechanical engineering preference, which will be used as a consideration for available freshman departmental scholarships. The focus of the Foundational Engineering and Computing 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.

For the bachelor of science degree in mechanical 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. An average of at least two grade points per credit hour must also be attained in all courses taken in mechanical engineering.

Each student's program of study must contain a minimum of 21 credit hours of course work in general education as follows:

1. ENGLISH 1120
2. HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SC 1200
3. ECON 1100 or ECON 1200
4. ENGL 1160 or ENGL 3560 or SP&MS 1185
5. A literature elective
6. A humanity or social science elective*
7. A humanity or social science elective* that has, as a prerequisite, a humanity or social science course already taken.

* Humanity and social science electives must be at least 3 credit hours of lecture designation, and also meet the requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog.

The mechanical 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 are presented and discussed through classroom and laboratory instruction.

Freshman Year

First Semester	Credits	Second Semester	Credits
FR ENG 1100	1	ECON 1100 or 1200	3
CHEM 1310[a]	4	MECH ENG 1720	3
ENGLISH 1120	3	PHYSICS 1135[a]	4
HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3	MATH 1215[a, b]	4
CHEM 1319	1	Elective-Hum or Soc Sci[f]	3
MATH 1214[a, b]	4		
	16		17

Sophomore Year

First Semester	Credits	Second Semester	Credits
MATH 2222[a]	4	MECH ENG 2761	3
Programming Elective[a, c]	3	MECH ENG 2519[a]	3
CIV ENG 2200[a]	3	MECH ENG 2360[a]	3
PHYSICS 2135[a]	4	MATH 3304[a]	3
MECH ENG 2653	3	MET ENG 2110[a]	3
	17		15

Junior Year

First Semester	Credits	Second Semester	Credits
MECH ENG 3313	3	MECH ENG 3411[a]	3
MECH ENG 3521	3	MECH ENG 3131	3
ELEC ENG 2800	3	MECH ENG 4840	2
CIV ENG 2210[a]	3	Elective-Communications[d]	3
CIV ENG 2211	1	MECH ENG 3708	3
Elective-Advanced Math/Stat[e]	3	MECH ENG 3525	3
	16		17

Senior Year

First Semester	Credits	Second Semester	Credits
MECH ENG 4842	2	ENG MGT 1100	1
MECH ENG 4479	3	ENG MGT 1210	2
MECH ENG technical elective[g]	3	MECH ENG 4761	3
Literature elective[f]	3	MECH ENG 4480	1
Technical elective[h]	3	MECH ENG 5000-level technical elective[g]	3
Elective-Advanced Hum or Soc Sci[f]	3	Breadth elective[i]	3
	17		13
Total Credits: 128			

Note: Students must satisfy the common freshman year academic requirements, and be admitted into the department, in addition to the sophomore, junior and senior year requirements listed above with a minimum of 128 hours.

a A grade of “C” or better is required in CHEM 1310, MATH 1214, MATH 1215, MATH 2222, MATH 3304, PHYSICS 1135, PHYSICS 2135, programming elective, MET ENG 2110, CIV ENG 2200, CIV ENG 2210, MECH ENG 2519, MECH ENG 2360, and

	MECH ENG 3411, both as prerequisite for follow-up courses in the curriculum and for graduation.
b	MATH 1208 and MATH 1221 may be substituted for MATH 1214 and MATH 1215, respectively.
c	The programming elective consists of a lecture and lab combination, and may be selected from COMP SCI 1970/COMP SCI 1980, COMP SCI 1971/COMP SCI 1981, or COMP SCI 1972/COMP SCI 1982, or COMP SCI 1570/COMP SCI 1580. Note that COMP SCI 1570/COMP SCI 1580 requires one more credit hour than the other options.
d	This course must be selected from the following: ENGLISH 1160, ENGLISH 3560 or SP&M S 1185, or the complete four course sequence in Advanced ROTC (MIL ARMY 3250, MIL ARMY 3500, MIL ARMY 4250, and MIL ARMY 4500; or MIL AIR 3110, MIL AIR 3120, MIL AIR 4110 and MIL AIR 4120).
e	This course must be selected from the following: MATH 3108, STAT 3113, STAT 3115 or any 5000-level math or stat course approved by the student's advisor.
f	All electives must be approved by the student's advisor. Humanity and social science electives must be at least 3 credit hours of lecture designation, and also meet requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog.
g	Six hours of technical electives, subject to approval by the student's advisor, must be in the department of mechanical and aerospace engineering. At least three of these technical elective hours must be at the 5000 level. This elective may not include co-op, special problems, or research credits, such as as 3002, 4000, or 4099. Honors students have special requirements for technical electives.
h	This elective must be a three credit hour course, subject to approval by the student's advisor, from any of the following areas: math, statistics, science, engineering, or computer science. The course must be at the 3000 or higher level, or have a prerequisite that is part of the required mechanical engineering curriculum. Exceptions to the course level may be approved by the student's advisor. The elective may not include co-op, special problems, or research credits, such as 3002, 4000, or 4099.
i	This elective consists of three credit hours, subject to approval by the student's advisor, and may be satisfied by any of the following: (1) A three credit hour course from any of the following areas: math, statistics, science, engineering, computer science, business, or IST. The course must be at the 3000 or higher level, or have a prerequisite that is part of the required mechanical engineering curriculum. Exceptions to the course level may be approved by the student's advisor; (2) Any three credit hour course in the list of approved courses for the global studies minor; or (3) Any combination of three credit hours from co-op (3002), special problems (3000, 4000, or 5000), research (4099), or design team credit (ENG MGT 2011, 2012, or 2013).
j	All mechanical engineering students must take the Fundamentals of Engineering Examination prior to graduation. A passing grade on this examination is not required to earn a B.S. degree. However, it is the first step toward becoming a registered professional engineer. This requirement is part of the Missouri S&T assessment process as described in assessment requirements found elsewhere in this catalog.

Energy Conversion Emphasis Area for Mechanical Engineering

Students desiring to obtain a bachelor of science degree in mechanical engineering with an emphasis area in energy conversion must satisfy all the requirements of the bachelor of science degree in mechanical engineering, with the additional stipulation that four courses must be taken as follows:

a. Two courses from the following list:		6
MECH ENG 5527	Combustion Processes	3
or AERO ENG 5527	Combustion Processes	
MECH ENG 5533	Internal Combustion Engines	3
MECH ENG 5566	Solar Energy Technology	3
MECH ENG 5567	Heat Pump And Refrigeration Systems	3
MECH ENG 5571	Environmental Controls	3

MECH ENG 5575	Mechanical Systems For Environmental Control	3
AERO ENG 5169	Introduction to Hypersonic Flow	3
AERO ENG 5535	Aerospace Propulsion Systems	3
b. One course from the following list:		3
MECH ENG 5519	Advanced Thermodynamics	3
or AERO ENG 5519	Advanced Thermodynamics	
MECH ENG 5525	Intermediate Heat Transfer	3
or AERO ENG 5525	Intermediate Heat Transfer	
MECH ENG 5131	Intermediate Thermofluid Mechanics	3
or AERO ENG 5131	Intermediate Thermofluid Mechanics	
MECH ENG 5139	Computational Fluid Dynamics	3
or AERO ENG 5139	Computational Fluid Dynamics	
c. One additional course from either list “a” or list “b”, or from the following list:		3
ECON 4540	Energy Economics	3
ELEC ENG 5150	Photovoltaic Systems Engineering	3
ENV ENG 5660	Introduction To Air Pollution	3
NUC ENG 4257	Two-phase Flow in Energy Systems - I	3

Note: By using the breadth elective and technical electives to satisfy the above requirements, this emphasis area requires the same total number of credit hours as the BSME degree. A change of major form should be submitted to designate the energy conversion emphasis area.

Manufacturing Processes Emphasis Area for Mechanical Engineering

Students desiring to obtain a bachelor of science in mechanical engineering with an emphasis area in manufacturing processes must satisfy all requirements of the bachelor of science in mechanical engineering with the additional stipulation that four courses must be taken as follows:

a. The following course:		3
MECH ENG 3653	Manufacturing	3
b. One course from the following Manufacturing/Automation courses:		3
MECH ENG 5653	Computer Numerical Control of Manufacturing Processes	3
MECH ENG 5655	Manufacturing Equipment Automation	3
MECH ENG 5449	Robotic Manipulators and Mechanisms	3
MECH ENG 5606	Material Processing By High-Pressure Water Jet	3
c. One course from the following Design courses:		3
MECH ENG 5763	Computer Aided Design: Theory and Practice	3
MECH ENG 5656	Design For Manufacture	3
MECH ENG 5702	Synthesis Of Mechanisms	3
d. One course from the following list:		3
MECH ENG 5708	Rapid Product Design And Optimization	3
MECH ENG 5758	Integrated Product Development	3

e. The Math/Stat elective must be one of the following:		3
STAT 3113	Applied Engineering Statistics	3
STAT 3115	Engineering Statistics	3

A suggested sequence for the junior and senior years is given below. Note that by using the breadth elective and technical electives to satisfy the above requirements, this emphasis area requires the same total number of credit hours as the BSME degree. A change of major form should be submitted to designate the manufacturing processes emphasis area.

Junior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
MECH ENG 3313	3	MECH ENG 3411[a]	3
ELEC ENG 2800	3	MECH ENG 3131	3
MECH ENG 3521	3	MECH ENG 3525	3
CIV ENG 2210[a]	3	MECH ENG 4840	2
CIV ENG 2211	1	MECH ENG 3653	3
STAT 3113 or 3115	3	Elective-Communications[d]	3
	16		17
Senior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
MECH ENG 4842	2	ENG MGT 1100	1
MECH ENG 4479	3	ENG MGT 1210	2
MECH ENG 3708	3	MECH ENG 4761	3
Manufacturing Technical Elective[f]	3	MECH ENG 4480	1
Manufacturing Technical Elective[f]	3	Manufacturing Technical Elective[f]	3
Elective Literature[e]	3	Electives-Hum or Soc Sci[e]	3
	17		13
Total Credits: 63			

a	A grade of “C” or better is required in CHEM 1310, MATH 1214, MATH 1215, MATH 2222, MATH 3304, PHYSICS 1135, PHYSICS 2135, programming elective, MET ENG 2110, CIV ENG 2200, CIV ENG 2210, MECH ENG 2519, MECH ENG 2360 and MECH ENG 3411, both as prerequisite for follow-up courses in the curriculum and for graduation.
b	MATH 1208 and MATH 1221 may be substituted for MATH 1214 and MATH 1215, respectively.
c	The programming elective consists of a lecture and lab combination, and may be selected from COMP SCI 1970/COMP SCI 1980, COMP SCI 1971/COMP SCI 1981, COMP SCI 1972/COMP SCI 1982, or COMP SCI 1570/COMP SCI 1580. Note that COMP SCI 1570/COMP SCI 1580 requires one more credit hour than the other options.
d	This course must be selected from the following: ENGLISH 1160, ENGLISH 3560 or SP&M S 1185, or the complete four course sequence in Advanced ROTC (MIL ARMY 3250, MIL ARMY 3500, MIL ARMY 4250, and MIL ARMY 4500; or MIL AIR 3110, MIL AIR 3120, MIL AIR 4110 and MIL AIR 4120).
e	All electives must be approved by the student’s advisor. Humanity and social science electives must be at least 3 credit hours of lecture designation, and also meet requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog.
f	The nine hours of manufacturing technical elective must be selected as follows:

	One course from the following manufacturing/automation courses: MECH ENG 5653, MECH ENG 5655, MECH ENG 5449, MECH ENG 5606. One of the following design courses: MECH ENG 5763, MECH ENG 5656, MECH ENG 5702. One course from the following list: MECH ENG 5708, MECH ENG 5758.
g	All mechanical engineering students must take the Fundamentals of Engineering Examination prior to graduation. A passing grade on this examination is not required to earn a B.S. degree, however, it is the first step toward becoming a registered professional engineer. This requirement is part of the Missouri S&T assessment process as described in Assessment Requirements found elsewhere in this catalog.

Mechanical Design and Analysis Emphasis Area

Students desiring to obtain a bachelor of science in mechanical engineering with an emphasis area in mechanical design and analysis must satisfy all requirements of the bachelor of science in mechanical engineering, with the additional stipulation that four courses must be taken as follows:

a. One design course from the following list:		3
MECH ENG 5709	Machine Design II	3
MECH ENG 5702	Synthesis Of Mechanisms	3
MECH ENG 5704	Compliant Mechanism Design	3
MECH ENG 5708	Rapid Product Design And Optimization	3
MECH ENG 5715	Concurrent Engineering	3
MECH ENG 5656	Design For Manufacture	3
MECH ENG 5757	Integrated Product And Process Design	3
MECH ENG 5760	Probabilistic Engineering Design	3
MECH ENG 5763	Computer Aided Design: Theory and Practice	3
MECH ENG 5761	Engineering Design Methodology	3
b. One analysis course from the following list:		3
MECH ENG 5307	Vibrations I	3
MECH ENG 5211	Introduction To Continuum Mechanics	3
MECH ENG 5212	Introduction to Finite Element Analysis	3
MECH ENG 5234	Stability of Engineering Structures	3
MECH ENG 5236	Fracture Mechanics	3
MECH ENG 5313	Intermediate Dynamics Of Mechanical And Aerospace Systems	3
MECH ENG 5222	Introduction To Solid Mechanics	3
MECH ENG 5238	Fatigue Analysis	3
MECH ENG 5449	Robotic Manipulators and Mechanisms	3
MECH ENG 5478	Mechatronics	3
c. Two additional courses from either of the previous lists.		6

Note that by using the breadth elective and technical electives to satisfy the above requirements, this emphasis area requires the same total number of credit hours as the BSME degree A change of major form should be submitted to designate the mechanical design and analysis emphasis area.

Systems Integration Emphasis Area

The Systems Integration emphasis area is required and available only for students pursuing a bachelor of science in mechanical engineering in the cooperative program delivered at Missouri State University. This emphasis area includes all requirements of the bachelor of science in mechanical engineering, except for the substitutions stipulated below.

The following requirements in the mechanical engineering curriculum are removed (16 credit hours):		
ELEC ENG 2800	Electrical Circuits	3
ENG MGT 1100	Practical Concepts for Technical Managers	1
Elective-Advanced Math/Stat		3
MECH ENG 5000-level technical elective		3
Technical elective		3
Breadth elective		3
The following requirements are added (16 credit hours):		
ELEC ENG 2100	Circuits I	3
ELEC ENG 2101	Circuit Analysis Laboratory I	1
ELEC ENG 2120	Circuits II	3
ENG MGT 3320	Introduction to Project Management	3
Systems Integration technical elective. One of the following:		3
MECH ENG 5307	Vibrations I	3
MECH ENG 5478	Mechatronics	3
MECH ENG 5481	Mechanical And Aerospace Control Systems	3
MECH ENG 5533	Internal Combustion Engines	3
MECH ENG 5571	Environmental Controls	3
MECH ENG 5575	Mechanical Systems For Environmental Control	3
MECH ENG 5656	Design For Manufacture	3
MECH ENG 5704	Compliant Mechanism Design	3
MECH ENG 5708	Rapid Product Design And Optimization	3
MECH ENG 5709	Machine Design II	3
MECH ENG 5715	Concurrent Engineering	3
MECH ENG 5757	Integrated Product And Process Design	3
MECH ENG 5763	Computer Aided Design: Theory and Practice	3
One of the following:		
STAT 3113	Applied Engineering Statistics	3
STAT 3115	Engineering Statistics	3
STAT 3117	Introduction To Probability And Statistics	3
~~COMP SCI 3200~~	~~Introduction To Numerical Methods~~	~~3~~

All of the substitutions for this emphasis area appear in the junior and senior years. A suggested sequence for the junior and senior years is given below.

Junior Year

First Semester	Credits	Second Semester	Credits
MECH ENG 3313	3	MECH ENG 3411[a]	3
MECH ENG 3521	3	MECH ENG 3131	3
ELEC ENG 2100	3	MECH ENG 3525	3
ELEC ENG 2101	1	MECH ENG 3708	3
CIV ENG 2210[a]	3	MECH ENG 4840	2
CIV ENG 2211	1	ELEC ENG 2120	3
STAT 3113, or 3115, or 3117	3		
	17		17

Senior Year

First Semester	Credits	Second Semester	Credits
MECH ENG 4842	2	MECH ENG 4761	3
MECH ENG 4479	3	Systems Integration technical elective[g]	3
MECH ENG 4480	1	Literature elective[e]	3
MECH ENG technical elective[f]	3	Elective - Advanced Hum or Soc Sci[e]	3
Elective - Communications[d]	3	ENG MGT 3320	3
ENG MGT 1210	2		
	14		15
Total Credits: 63			

a	A grade of “C” or better is required in CHEM 1310, MATH 1214, MATH 1215, MATH 2222, MATH 3304, PHYSICS 1135, PHYSICS 2135, programming elective, MET ENG 2110, CIV ENG 2200, CIV ENG 2210, MECH ENG 2519, MECH ENG 2360 and MECH ENG 3411, both as prerequisite for follow-up courses in the curriculum and for graduation.
b	MATH 1208 and MATH 1221 may be substituted for MATH 1214 and MATH 1215, respectively.
c	The programming elective consists of a lecture and lab combination, and may be selected from COMP SCI 1970/COMP SCI 1980, COMP SCI 1971/COMP SCI 1981, or COMP SCI 1972/COMP SCI 1982, or COMP SCI 1570/COMP SCI 1580. Note that COMP SCI 1570/COMP SCI 1580 requires one more credit hour than the other options.
d	This course must be selected from the following: ENGLISH 1160, ENGLISH 3560 or SP&M S 1185, or the complete four course sequence in Advanced ROTC (MIL ARMY 3250, MIL ARMY 3500, MIL ARMY 4250, and MIL ARMY 4500; or MIL AIR 3110, MIL AIR 3120, MIL AIR 4110 and MIL AIR 4120).
e	All electives must be approved by the student's advisor. Humanity and Social Science electives must be at least 3 credit hours of lecture designation, and also meet requirements as specified under “Engineering Degree Requirements” published in the current undergraduate catalog.
f	The mechanical engineering technical elective is subject to approval by the student's advisor, and must be in the department of mechanical and aerospace engineering. This elective may not include co-op, special problems, or research credits, such as 3002, 4000, or 4099. Honors students have special requirements for technical electives.
g	The systems integration technical elective must be selected from the following list: MECH ENG 5307, 5478, 5481, 5533, 5571, 5575, 5656, 5704, 5708, 5709, 5715, 5757, 5763.
h	All mechanical engineering students must take the Fundamentals of Engineering Examination prior to graduation. A passing grade on this examination is not required to earn a B.S. degree. However, it is the first step toward becoming a registered professional engineer. This requirement is part of the Missouri S&T assessment process as described in assessment requirements found elsewhere in this catalog.

Justification for request

We are removing the CompSci option from the math/stat/CompSci elective, to make it a math/stat elective. This is so it qualifies for ABET accounting as 3 credit hours of math.

Supporting Documents

Course Reviewer Comments

tibbettsmg (02/17/21 8:17 am): proposed elective changes don't affect the scope of program and don't require MDHE approval. MT

Key: 86

Program Change Request

Date Submitted: 03/11/21 9:27 am

Viewing: PSYCH-BA : Psychology BA

File: 192.43

Last approved: 03/04/21 10:02 am

Last edit: 03/11/21 9:27 am

Changes proposed by: burnsde

Catalog Pages Using this Program
Psychology

Start Term
Fall 2021
Program Code
PSYCH-BA
Department
Psychological Science
Title
Psychology BA

Program Requirements and Description

In Workflow

1. **RPSYCHOL 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. Kristy Giacomelli-Feys

Approval Path

1. 03/10/21 3:57 pm Susan Murray (murray): Approved for RPSYCHOL Chair
2. 03/10/21 4:11 pm Marita Tibbetts (tibbettsmg): Rollback to Initiator
3. 03/14/21 7:39 pm Susan Murray (murray): Approved for RPSYCHOL Chair
4. 03/15/21 10:32 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
5. 03/15/21 10:37 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

History

1. Aug 4, 2014 by nstone
2. Mar 20, 2015 by nstone
3. Jun 19, 2015 by nstone
4. Jul 21, 2015 by pantaleoa
5. Jun 28, 2017 by Nathan Weidner (weidnern)
6. Jun 14, 2019 by Susan Murray (murray)
7. Jul 1, 2020 by Devin Burns (burnsde)
8. Mar 4, 2021 by Devin Burns (burnsde)

Bachelor of Arts
Psychology

A minimum of 120 credit hours is required for a bachelor of arts degree in psychology and an average of at least two grade points per credit hour must be obtained. The psychology B.A. curriculum requires 6 hours of English Composition, 14 hours of math and science, 12 semester hours in humanities, 12 semester hours is required in social sciences, 11-16 hours of foreign language and a minimum of 35 hours are required in psychology. Up to 12 credit hours of advanced ROTC may be credited toward the degree. Specific requirements for the bachelor of arts degree are outlined in the sample program listed below.

1. ENGLISH 1120 and one additional three hour composition course (6 hours).
2. Western civilization (HISTORY 1100 and HISTORY 1200) (6 hours).
3. Foreign languages for at least 3 semesters of basic study in French, German, Russian, Spanish or an approved substitute; or one year of basic study in a foreign language in either French, German, Russian, Spanish, or an approved substitute, and a humanities or social sciences course taught in a foreign country and employing the language of that country; or one year of basic study in each of two of the foreign languages of French, German, Russian or Spanish or an approved substitute (11-16 hours).
4. Sciences. At least one course taken in biological (biological sciences) and physical (chemistry, geology and geophysics, physics) sciences. A laboratory course is required (and a lab offered in engineering also may count at the discretion of the student's major advisor) toward the total requirement. Stat 1115 is required, and an additional elective in Science or Math (14 hours).
5. Humanities and fine arts. Courses used to satisfy this requirement must include one course in each of the three areas of literature (English or American), philosophy, and fine arts (art, music or theater), but not to include studio and performance offerings (12 hours).
6. Social Sciences. At least two of the following social science areas are to be included: economics, political science, or history (6 hours).
7.

Psychology Courses (35 hours)
Required:*
General Skills Courses:

PSYCH 1100	Introduction to Psychology	1
PSYCH 1101	General Psychology	3
PSYCH 2200	Research Methods	4
Content Courses:		
PSYCH 3310	Developmental Psychology	3
PSYCH 4400	Cognitive Psychology	3
PSYCH 4501	Abnormal Psychology	3
PSYCH 4600	Social Psychology	3
And one of the following 2 courses:		
PSYCH 4410	Neuroscience	3
PSYCH 4411	Sensation and Perception	3
Capstone Course:		
Select three credit hours from the Capstone courses:		
PSYCH 4010	Seminar	0-6
PSYCH 4099	Undergraduate Research	0-6
PSYCH 4200	Tests and Measurements	3
PSYCH 4590	Health Psychology	3
PSYCH 4994	Psychology in Media	3
PSYCH 4992	Cross-Cultural Psychology	3
PSYCH 4993	Psychology of Gender	3
PSYCH 4990	Internship	0-6
*These required courses total 26 hours.		
Elective Courses:		
Select an additional 9 hours of psychology electives to complete the 35 hour degree requirement.		

8. Major-field requirements: A cumulative grade point average of 2.0 must be earned in all course work taken in the major field. Upper-class (3000-4000-level) courses completed with grades of "D" may not be included in the course work for the major field without the approval of the chair of the department. At least nine hours of upper-class work in the major field must be completed in residence at Missouri S&T.
9. Minor: A minor will be selected from any discipline other than the major with the approval of the student's advisor. A total of at least 15 hours is required for the minor, but may include courses which also satisfy other requirements. At least nine hours must be beyond the introductory level. A cumulative grade point average of 2.0 must be earned in all course work required in the minor field. At least six hours of work in the minor field must be completed in residence at Missouri S&T.
10. Basic ROTC may be elected in the freshman and sophomore years, but is not creditable toward a degree. Up to 12 credit hours of advanced ROTC may be credited toward a degree.
11. Elective Credits: In consultation with his/her advisor, each student will elect sufficient additional courses to complete a minimum of 120 credit hours.

Emphasis Areas

Note: The following areas identify courses from which a student may opt to develop an emphasis area. It is not required that students obtain an emphasis specialty within psychology. At least one class for each emphasis area is already required for all majors, so the remaining three may be taken as the additional 9 hours of required psychology electives. In this way, getting an emphasis requires no additional courses, just less flexibility in which courses you take.

Industrial/Organizational Psychology

PSYCH 4600	Social Psychology	3
PSYCH 4700	Industrial Psychology	3
PSYCH 4602	Organizational Psychology	3
And 1 of the following 4:		
PSYCH 4601	Group Dynamics	3
PSYCH 4610	Psychology of Leadership in Organizations	3
PSYCH 4500	Personality Theory	3
PSYCH 4200	Tests and Measurements	3
Health Psychology		
PSYCH 4501	Abnormal Psychology	3
And 3 of the following 4:		
PSYCH 4510	Clinical Psychology	3
PSYCH 4990	Internship	0-6
PSYCH 4590	Health Psychology	3
PSYCH 3501	Drugs and Behavior	3
Cognition and Neuroscience		
PSYCH 4400	Cognitive Psychology	3
And 3 of the following 4:		
PSYCH 4411	Sensation and Perception	3
PSYCH 3400	Theories Of Learning	3
PSYCH 4410	Neuroscience	3
PSYCH 3501	Drugs and Behavior	3
Human Factors		
PSYCH 4400	Cognitive Psychology	3
PSYCH 4710	Human Factors	3
PSYCH 4720	Psychology of Social Technology	3
And 1 of the following 3:		
PSYCH 4411	Sensation and Perception	3
PSYCH 4700	Industrial Psychology	3
PSYCH 4602	Organizational Psychology	3
Diversity and Inclusion		
PSYCH 4600	Social Psychology	3
And 3 of the following 4:		
PSYCH 4993	Psychology of Gender	3
PSYCH 4500	Personality Theory	3
PSYCH 4992	Cross-Cultural Psychology	3
PSYCH 4310	Psychology Of The Exceptional Child	3

Bachelor of Arts Psychology (Secondary Education Emphasis Area)

You may earn a B.A. degree in psychology from Missouri S&T and certification to teach at the secondary level in the schools of Missouri with the secondary education emphasis area **program.**

~~program.~~

In addition to maintaining a 3.0 content and professional requirement GPA, students must pass the appropriate content assessment to be eligible for student teaching. Missouri S&T allows students to choose their student teaching placement, if the district agrees and a qualified cooperating teacher is available. This program is approved by the Missouri Department of Elementary and Secondary Education for initial teacher certification. Students intending to teach in other states are responsible for investigating the reciprocity agreement of that state agency.

~~This program can be completed in four academic years and student teaching is arranged with public schools within 30 miles of the Rollacampus.Students interested in this emphasis area should consult with the advisor for the secondary education emphasis area in the department of psychologicalscience.In order to successfully complete this emphasis area, students must have at least 22 on the ACT, maintain a cumulative GPA of at least 2.5, and attain at least a 2.5 GPA in psychology coursestaken.Current Missouri S&T or transfer students who wish to pursue this emphasis area must meet both of these GPA requirements to be accepted into theprogram.Students must also meet all requirements listed under the teacher education program in thiscatalog.Students who do not meet all the teacher certification requirements will not be eligible for the secondary education emphasis area, even if they have completed all coursework.~~A degree with this emphasis area requires **121** ~~125~~ credit hours. The required courses are provided below.

Communications Skills: 6 semester hours		
ENGLISH 1120	Exposition And Argumentation	3
ENGLISH 1160	Writing And Research	3
Humanities: 12 semester hours		
Art, Music, or Theatre course		3
Philosophy course		3
Literature course		3
One additional humanities from the above course groups, Foreign Language, or Etymology		3
Social Sciences: 21 semester hours		
HISTORY 1300	American History To 1877	3
HISTORY 1310	American History Since 1877	3
POL SCI 1200	American Government	3
POL SCI 3211	American Political Parties	3
or POL SCI 3300	Principles Of Public Policy	
or POL SCI 3760	The American Presidency	
or POL SCI 3763	Contemporary Political Thought	
PSYCH 1101	General Psychology	3
ECON 1100	Principles Of Microeconomics	3
or ECON 1200	Principles Of Macroeconomics	
Geography		3
Natural Science/Mathematics: 12 semester hours		
One course in Physics, Chemistry or Geology		3
Mathematics 1120, 1103, 1140+		3
STAT 1115	Statistics For The Social Sciences I	3

BIO SCI 1113	General Biology	3
Professional Requirements: 23 semester hours		
EDUC 1040	Perspectives In Education	2
EDUC 1174	School Organization and Administration For Teachers	2
EDUC 2251	Historical Foundation Of American Education	3
EDUC 3216	Instructional Literacy in the Content Area	3
EDUC 3280	Instructional Strategies in the Content Area	3
EDUC 4298	Student Teaching Seminar	1
PSYCH 2300	Educational Psychology	3
PSYCH 3311	Psychological & Educational Development Of The Adolescent	3
PSYCH 4310	Psychology Of The Exceptional Child	3
Clinical Experience: 15 semester hours		
EDUC 1104	Teacher Field Experience I	1
EDUC 1164	Teacher Field Experience II	2
EDUC 4299	Student Teaching	12
Psychology Degree Requirements: 17 semester hours		
PSYCH 1100	Introduction to Psychology	1
PSYCH 2200	Research Methods	4
PSYCH 3400	Theories Of Learning	3
PSYCH 3310	Developmental Psychology	3
PSYCH 4501	Abnormal Psychology	3
or PSYCH 4500	Personality Theory	
PSYCH 4600	Social Psychology	3
Certification: 15 semester hours		
6 hours of American History from the following:		
HISTORY 3320	Colonial America	
HISTORY 3325	Revolutionary America, 1754-1789	
HISTORY 3340	Age Of Jefferson And Jackson	
HISTORY 3345	Civil War And Reconstruction	
HISTORY 3360	Recent United States History	
HISTORY 3425	History Of The Old South	
HISTORY 3426	History Of The Modern South	
HISTORY 3480	History Of Baseball	
HISTORY 3440	20th Century Americans In Combat	
HISTORY 3442	The United States in Vietnam	
HISTORY 3761	U.S. Diplomatic History to World War II	
HISTORY 4435	History of the American West	
9 hours of World History from the following:		
HISTORY 1100	Early Western Civilization	

HISTORY 1200	Modern Western Civilization
HISTORY 2220	Making Of Modern Britain
HISTORY 2222	The Making Of Modern France
HISTORY 2224	Making Of Modern Russia
HISTORY 3130	Medieval History I
HISTORY 3135	Medieval History II
HISTORY 3140	History Of Renaissance Thought
HISTORY 3230	Europe In The Age Of The French Revolution And Napoleon
HISTORY 3235	Foundations Of Contemporary Europe 1815-1914
HISTORY 3240	Contemporary Europe
HISTORY 3660	Modern East Asia

Justification for request

Made changes requested by Dr. Kania-Gosche in Education, and adjusted education credit hours.

Supporting Documents

~~MS&T PC November 2020.pdf~~

Course Reviewer Comments

tibbettsmg (03/10/21 4:11 pm): Rollback: credit hours need updated to reflect accurately. MT

Key: 192

Program Change Request

Date Submitted: 03/11/21 9:28 am

Viewing: PSYCH-BS : Psychology BS

File: 193.44

Last approved: 03/04/21 10:02 am

Last edit: 03/11/21 9:28 am

Changes proposed by: burnsde

Catalog Pages Using this Program

Psychology

Start Term

Fall 2021

Program Code

PSYCH-BS

Department

Psychological Science

Title

Psychology BS

Program Requirements and Description

In Workflow

1. **RPSYCHOL 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. Kristy Giacomelli-Feys

Approval Path

1. 03/10/21 3:57 pm Susan Murray (murray): Approved for RPSYCHOL Chair
2. 03/10/21 4:14 pm Marita Tibbetts (tibbettsmg): Rollback to Initiator
3. 03/14/21 7:40 pm Susan Murray (murray): Approved for RPSYCHOL Chair
4. 03/15/21 10:33 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
5. 03/15/21 10:38 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

History

1. May 6, 2014 by nstone
2. Jul 8, 2014 by pantaleoa
3. Jul 8, 2014 by pantaleoa
4. Mar 20, 2015 by nstone
5. Jun 19, 2015 by nstone
6. Jul 21, 2015 by pantaleoa
7. Jun 28, 2017 by Nathan Weidner (weidnern)
8. Jun 14, 2019 by Susan Murray (murray)
9. Jul 1, 2020 by Devin Burns (burnsde)
10. Mar 4, 2021 by Devin Burns (burnsde)

Bachelor of Science
Psychology

A minimum of 120 credit hours is required for a bachelor of science degree in psychology and a cumulative grade point average of 2.0 must be obtained. These requirements for the B.S. degree are in addition to credit received for basic ROTC.

The psychology bachelor of science curriculum requires six hours of English composition; 20 hours of math, science and computer science; twelve semester hours in the humanities; and twelve semester hours in the social sciences. Specific requirements for the bachelor degree are outlined in the sample program listed below.

1. ENGLISH 1120 and ENGLISH 1160 (entering students will normally take ENGLISH 1120 either semester of the first year.) (6 hours)
2. A total of 20 hours in biological, physical, (chemistry, geology and geophysics, and physics), and mathematical (mathematics/statistics and computer science or information science & technology) sciences, to include at least one course taken in the biological and one in the physical sciences. Of the biological and physical science offerings, at least one must be a laboratory course. Stat 1115 is required. Engineering courses may, at the discretion of the student's major advisor, also count toward this total requirement. (20 hours)
3. 12 hours in humanities and fine arts (literature, philosophy, art, music, or theater). Foreign language courses may count toward fulfilling this requirement. Courses used to satisfy this requirement must be taken in at least two humanities areas. (12 hours)
4. 12 hours in at least two social sciences fields outside the major area (economics or history or political science). A course in Modern Western Civilization (HISTORY 1200), American History To 1877 (HISTORY 1300) or American History Since 1877 (HISTORY 1310), or American Government (POL SCI 1200) must be taken to satisfy the requirement of the state of Missouri (the "Williams Law"), and this course may count toward fulfilling the social sciences requirement. (12 hours)
5. Minor: A minor will be selected from any discipline other than the major with the approval of the student's advisor. A total of at least 15 hours is required for the minor, but may include courses which also satisfy other requirements. At least nine hours must be beyond the introductory level.

6. Basic ROTC may be elected in the freshman and sophomore years, but is not creditable toward a degree. Six credit hours of advanced ROTC may be credited toward a degree.
7. Elective Credits: In consultation with his/her advisor, each student will elect sufficient additional courses to complete a minimum of 120 credit hours which may include MATH 1160 and one of MATH 1120 or MATH 1140 .
8.

Psychology Courses (35 hours)		
Required:*		
General Skills Courses:		
PSYCH 1100	Introduction to Psychology	1
PSYCH 1101	General Psychology	3
PSYCH 2200	Research Methods	4
Content Courses:		
PSYCH 3310	Developmental Psychology	3
PSYCH 4400	Cognitive Psychology	3
PSYCH 4501	Abnormal Psychology	3
PSYCH 4600	Social Psychology	3
And one of the following 2 courses:		
PSYCH 4410	Neuroscience	3
PSYCH 4411	Sensation and Perception	3
Capstone Course:		
Select three credit hours from the following Capstone courses:		
PSYCH 4010	Seminar	0-6
PSYCH 4099	Undergraduate Research	0-6
PSYCH 4200	Tests and Measurements	3
PSYCH 4590	Health Psychology	3
PSYCH 4994	Psychology in Media	3
PSYCH 4992	Cross-Cultural Psychology	3
PSYCH 4993	Psychology of Gender	3
PSYCH 4990	Internship	0-6
*These required courses total 26 hours.		
Elective Courses:		
Select an additional 9 hours of psychology electives to complete the 35 hour degree requirement.		

9. A cumulative grade point average of 2.0 must be earned in all course work taken in the major field. Upper class (3000-level and above) courses completed with grades of “D” may not be included in the course work for the major field without the approval of the advisor and the chair of the department concerned.

Emphasis Areas

Note: The following areas identify courses from which a student may opt to develop an emphasis area. It is not required that students obtain an emphasis specialty within psychology. **At least one class for each emphasis area is already required for all majors, so the remaining three may be taken as the additional 9 hours of required psychology electives. In this way, getting an emphasis requires no additional courses, just less flexibility in which courses you take.**

Industrial/Organizational Psychology

PSYCH 4600	Social Psychology	3
PSYCH 4700	Industrial Psychology	3
PSYCH 4602	Organizational Psychology	3
And 1 of the following 4:		
PSYCH 4601	Group Dynamics	3
PSYCH 4500	Personality Theory	3
PSYCH 4610	Psychology of Leadership in Organizations	3
PSYCH 4200	Tests and Measurements	3
Health Psychology		
PSYCH 4501	Abnormal Psychology	3
And 3 of the following 4:		
PSYCH 4510	Clinical Psychology	3
PSYCH 3501	Drugs and Behavior	3
PSYCH 4590	Health Psychology	3
PSYCH 4990	Internship	0-6
Cognition and Neuroscience		
PSYCH 4400	Cognitive Psychology	3
PSYCH 4410	Neuroscience	3
PSYCH 4411	Sensation and Perception	3
And 1 of the following 2:		
PSYCH 3400	Theories Of Learning	3
PSYCH 3501	Drugs and Behavior	3
Human Factors		
PSYCH 4400	Cognitive Psychology	3
PSYCH 4710	Human Factors	3
PSYCH 4720	Psychology of Social Technology	3
And 1 of the following 3:		
PSYCH 4700	Industrial Psychology	3
PSYCH 4602	Organizational Psychology	3
PSYCH 4411	Sensation and Perception	3
Diversity and Inclusion		
PSYCH 4600	Social Psychology	3
And 3 of the following 4:		
PSYCH 4993	Psychology of Gender	3
PSYCH 4992	Cross-Cultural Psychology	3
PSYCH 4310	Psychology Of The Exceptional Child	3
PSYCH 4500	Personality Theory	3

Bachelor of Science Psychology (Secondary Education Emphasis Area)

You may earn a B.S. degree in psychology from Missouri S&T and certification to teach at the secondary level in the schools of Missouri with the secondary education emphasis area **program.**

~~program.~~

In addition to maintaining a 3.0 content and professional requirement GPA, students must pass the appropriate content assessment to be eligible for student teaching. Missouri S&T allows students to choose their student teaching placement, if the district agrees and a qualified cooperating teacher is available. This program is approved by the Missouri Department of Elementary and Secondary Education for initial teacher certification. Students intending to teach in other states are responsible for investigating the reciprocity agreement of that state agency.

~~This program can be completed in four academic years and student teaching is arranged with public schools within 30 miles of the Rollacampus.Students interested in this emphasis area should consult with the advisor for the secondary education emphasis area in the department of psychologicalscience.In order to successfully complete this emphasis area, students must have at least 22 on the ACT, maintain a cumulative GPA of at least 2.5, and attain at least a 2.5 GPA in psychology coursestaken.Current Missouri S&T or transfer students who wish to pursue this emphasis area must meet both of these GPA requirements to be accepted into theprogram.Students must also meet all requirements listed under the teacher education program in thiscatalog.Students who do not meet all the teacher certification requirements will not be eligible for the secondary education emphasis area, even if they have completed all coursework.~~A degree **with** ~~in~~ this emphasis area requires **121** ~~125~~ credit hours. The required courses are provided below.

Communications Skills: 3 semester hours		
ENGLISH 1120	Exposition And Argumentation	3
Humanities: 12 semester hours		
Art, Music, or Theatre course		3
Philosophy course		3
Literature course		3
One additional humanities from the above course groups, Foreign Language, or Etymology		3-4
Social Sciences: 21 semester hours		
HISTORY 1300	American History To 1877	3
HISTORY 1310	American History Since 1877	3
POL SCI 1200	American Government	3
POL SCI 3211	American Political Parties	3
or POL SCI 3300	Principles Of Public Policy	
or POL SCI 3760	The American Presidency	
or POL SCI 3763	Contemporary Political Thought	
PSYCH 1101	General Psychology	3
ECON 1100	Principles Of Microeconomics	3
or ECON 1200	Principles Of Macroeconomics	
HISTORY 2110	World Regional Geography	3
Natural Sciences/Mathematics: 15 semester hours		
One course in Physics, Chemistry or Geology		3
Mathematics 1120, 1130, 1140+		3
BIO SCI 1113	General Biology	3
STAT 1115	Statistics For The Social Sciences I	3

3 additional hours of Math &/or Science courses		3
Professional Requirements: 23 semester hours		
EDUC 1040	Perspectives In Education	2
EDUC 1174	School Organization and Administration For Teachers	2
EDUC 2251	Historical Foundation Of American Education	3
EDUC 3216	Instructional Literacy in the Content Area	3
EDUC 3280	Instructional Strategies in the Content Area	3
EDUC 4298	Student Teaching Seminar	1
PSYCH 2300	Educational Psychology	3
PSYCH 3311	Psychological & Educational Development Of The Adolescent	3
PSYCH 4310	Psychology Of The Exceptional Child	3
Clinical Experience: 15 semester hours		
EDUC 1104	Teacher Field Experience I	1
EDUC 1164	Teacher Field Experience II	2
EDUC 4299	Student Teaching	12
Psychology Degree Requirements: 17 semester hours		
PSYCH 1100	Introduction to Psychology	1
PSYCH 2200	Research Methods	4
PSYCH 3400	Theories Of Learning	3
PSYCH 3310	Developmental Psychology	3
PSYCH 4501	Abnormal Psychology	3
or PSYCH 4500	Personality Theory	
PSYCH 4600	Social Psychology	3
Certification: 15 semester hours		
6 hours of American History from the following:		
HISTORY 3320	Colonial America	
HISTORY 3325	Revolutionary America, 1754-1789	
HISTORY 3340	Age Of Jefferson And Jackson	
HISTORY 3345	Civil War And Reconstruction	
HISTORY 3360	Recent United States History	
HISTORY 3425	History Of The Old South	
HISTORY 3426	History Of The Modern South	
HISTORY 3480	History Of Baseball	
HISTORY 3440	20th Century Americans In Combat	
HISTORY 3442	The United States in Vietnam	
HISTORY 3761	U.S. Diplomatic History to World War II	
HISTORY 4435	History of the American West	
9 hours of World History from the following:		
HISTORY 1100	Early Western Civilization	

HISTORY 1200	Modern Western Civilization
HISTORY 2220	Making Of Modern Britain
HISTORY 2222	The Making Of Modern France
HISTORY 2224	Making Of Modern Russia
HISTORY 3130	Medieval History I
HISTORY 3135	Medieval History II
HISTORY 3140	History Of Renaissance Thought
HISTORY 3230	Europe In The Age Of The French Revolution And Napoleon
HISTORY 3235	Foundations Of Contemporary Europe 1815-1914
HISTORY 3240	Contemporary Europe
HISTORY 3660	Modern East Asia

Justification for request

Made changes requested by Dr. Kania-Gosche in Education and adjusted education class credit hours.

Supporting Documents

~~MS&T PC November 2020.pdf~~

Course Reviewer Comments

tibbettsmg (03/10/21 4:14 pm): Rollback: credit hours need updated to reflect accurately. MT

Key: 193

Program Change Request

Date Submitted: 02/26/21 8:23 am

Viewing: PRJ MGT-CT : Project Management CT

File: 334.1

Last edit: 03/04/21 1:14 pm

Changes proposed by: cornss

Catalog Pages Using this Program
Engineering Management

Start Term
Fall 2021
Program Code
PRJ MGT-CT
Department
ENG MGT
Title
Project Management CT

Program Requirements and Description

In Workflow

1. **CCC Secretary**
2. **Engineering DSCC Chair**
3. **Pending CCC Agenda post**
4. CCC Meeting Agenda
5. Campus Curricula Committee Chair
6. FS Meeting Agenda
7. Faculty Senate Chair
8. Registrar
9. Kristy Giacomelli-Feys

Approval Path

1. 02/26/21 9:28 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
2. 03/04/21 1:23 pm Stephen Raper (sraper): Approved for Engineering DSCC Chair

Project Management

The project management certificate program aims to equip students with a set of tools that will allow them to achieve Project Management Institute (PMI) standards in the project management area, to successfully manage projects and human resources, and to analyze, evaluate, and improve systems.

The certificate program will consist of **three** ~~four~~ required **courses and the student's choice of one of two finance related courses :** ~~courses:~~

ENG MGT 5320	Project Management
ENG MGT 6322	Case Studies in Project Management
ENG MGT 6323	Global Project Management
ENG MGT 5210	Economic Decision Analysis

or SYS ENG 6103	Systems Life Cycle Costing

Justification for request

Systems Engineering 6103 has some similarity with Engineering Management 5210, but offers insight into complex projects.

Supporting Documents

Course Reviewer Comments

tibbettsmg (03/04/21 1:14 pm): re-ordered course list to include a consistent order. MT

Key: 334

Program Change Request

Date Submitted: 03/10/21 4:11 pm

Viewing: PSYMTRP-CT : Statistical Methods Psych CT

File: 305.5

Last approved: 09/15/20 2:34 pm

Last edit: 03/10/21 4:22 pm

Changes proposed by: burnsde

Catalog Pages Using this Program
Psychology

Start Term
Fall **2021** ~~2020~~
Program Code
PSYMTRP-CT
Department
Psychological Science
Title
Statistical Methods Psych CT

Program Requirements and Description

In Workflow

1. **RPSYCHOL 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. Kristy Giacomelli-Feys

Approval Path

1. 03/10/21 4:20 pm Susan Murray (murray): Approved for RPSYCHOL Chair
2. 03/10/21 4:23 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 03/11/21 8:44 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

History

1. Jun 13, 2019 by Brittany Parnell (ershenb)
2. Jul 1, 2020 by Devin Burns (burnsde)
3. Sep 15, 2020 by Crystal Wilson

(wilsoncry)

Statistical Methods in Psychology

This certificate program is designed to provide formalized education in the area of **statistics as it is applied to the analysis of psychological data.** ~~psychometrics.~~ **Students will complete a four course sequence of classes designed to develop basic graduate level skills in psychological data analysis. These courses will develop an understanding of basic graduate level statistical concepts including probability, t-tests, ANOVAs, regression, as well as non-parametric tests. Students will engage in projects which include measure development and refinement procedures.**

~~Psychometrics is the field of study concerned with the theory and technique of psychological measurement and includes the measurement of knowledge, abilities, attitudes, and personalitytraits.The field is primarily concerned with the study of differences between individuals and involves two major researchtasks:(1) the construction of instruments and procedures for measurement; and (2) the development and refinement of theoretical approaches tomeasurement.After being admitted to the program, a student must take two courses from a group of three and an additional two courses from a second group ofthree.~~The following two psychology courses will be required:

PSYCH 5201	Psychometrics
PSYCH 5202	Applied Psychological Data Analysis

And an additional two statistics courses chosen from these four:

STAT 5346	Regression Analysis
STAT 5353	Statistical Data Analysis
STAT 5643	Probability And Statistics
STAT 6344	Design And Analysis Of Experiments

Admissions requirements for the statistical methods in psychology certificate are available at https://psych.mst.edu/academic-programs/graduate/admission-requirements/

Students admitted to the certificate program will have a non-matriculated status as a graduate student. If they complete each of the four courses with a grade of B or better, they may be admitted to the Missouri S&T master's degree program in industrial-organizational psychology or mathematics and statistics if they apply and meet the program requirements. Students who do not have all of the prerequisite courses necessary to take a course in the certificate program will be allowed to take "bridge" courses at either the graduate or undergraduate level to prepare for the formal certificate courses.

Justification for request

The description no longer matched the requirements and has been edited.

Supporting Documents

Course Reviewer Comments

tibbettsmg (03/10/21 4:22 pm): updated effective term to FS21. mt

Key: 305

Course Change Request

New Experimental Course Proposal

Date Submitted: 02/12/21 1:14 pm

Viewing: **CHEM ENG 5001.014 : Applications of Computational Fluid Dynamics**

File: 4785

Last edit: 03/04/21 8:33 am

Changes proposed by: luksc

Requested Effective Change Date	Fall 2021
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	5001
Topic ID	014
Experimental Title	Applications of Computational Fluid Dynamics
Experimental Abbreviated Course Title	Applications of CFD
Instructors	Joseph Smith

Experimental Catalog Description

In Workflow

1. **RCHEMENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. CAT entry
8. Registrar

Approval Path

1. 02/12/21 1:16 pm Hu Yang (huyang): Approved for RCHEMENG Chair
2. 03/04/21 8:33 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 03/08/21 12:52 pm Stephen Raper (sraper): Approved for

Engineering DSCC Chair

Applications of CFD analyses is presented to investigate mass, momentum and heat transport in complex geometries with general initial and boundary conditions. Students will gain practical experience using commercial CFD codes and learn and apply a general algorithm for solving challenging industrial problems using tutorials.

Prerequisites

Either Chem Eng 3101 or Chem Eng 5100 and either Chem Eng 3111 or Chem Eng 5150.

Field Trip Statement

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

Total: 3

Justification for new course:

Chem Eng 6180 (Advanced Applications of CFD) is an existing course. The instructor would like to modify the course to include projects that would be appropriate for a senior technical elective or a Master's student. This new course would have a less complex project than the 6180 course.

Semester(s) previously taught

Spring 2019 as Chem Eng 6180

Co-Listed Courses:

Course Reviewer Comments

Key: 4785

Preview Bridge

Course Change Request

New Experimental Course Proposal

Date Submitted: 02/16/21 9:10 am

Viewing: **CHEM ENG 5001.016 : Drug and Gene Delivery Systems**

File: 4787

Last edit: 03/04/21 8:37 am

Changes proposed by: luksc

Requested Effective Change Date	Fall 2021
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	5001
Topic ID	016
Experimental Title	Drug and Gene Delivery Systems
Experimental Abbreviated Course Title	Drug and Gene Delivery
Instructors	Hu Yang

Experimental Catalog Description

In Workflow

1. **RCHEMENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. CAT entry
8. Registrar

Approval Path

1. 02/16/21 9:19 am Hu Yang (huyang): Approved for RCHEMENG Chair
2. 03/04/21 8:37 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 03/08/21 12:52 pm Stephen Raper (sraper): Approved for

Engineering DSCC Chair

Overview of drug and gene delivery systems, rational design for their applications with an emphasis on structure-property-function relationships. Three major parts: polymers and nanoparticles as drug and gene carriers; strategies to deliver drugs and genes; in vitro and in vivo techniques of assessment and validation.

Prerequisites

Chem 2210 and BioSci 2213.

Field Trip Statement

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

Justification for new course:

Elective in research area of new faculty member and department chair, Hu Yang

Semester(s) previously taught

Taught at previous university, never at S&T

Co-Listed Courses:

Course Reviewer Comments

Key: 4787

Preview Bridge

Course Change Request

New Experimental Course Proposal

Date Submitted: 02/23/21 3:00 pm

Viewing: **COMP SCI 4001.004 : Internet Services**

File: 4786

Last edit: 02/23/21 4:04 pm

Changes proposed by: zhupe

Requested Effective Change Date	Fall 2021
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	4001
Topic ID	004
Experimental Title Internet Services	
Experimental Abbreviated Course Title	Internet Services
Instructors	Gerry Howser

Experimental Catalog Description

In Workflow

1. **RCOMPSCI Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. CAT entry
8. Registrar

Approval Path

1. 02/23/21 3:57 pm Samuel Frimpong (frimpong): Approved for RCOMPSCI Chair
2. 02/23/21 4:04 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 02/26/21 8:46 am Stephen Raper (sraper): Approved for

Engineering DSCC Chair

This course is designed to introduce the protocols, hardware, and services required to provide the Internet services most users expect. These include Name Service, Message Routing, Email, Dynamic Configuration of the network and hosts, Private Subnetworking, and Web Services. These will be implemented using Raspberry Pi microcomputers.

Prerequisites

A grade of "C" or better in Comp Sci 3610.

Field Trip Statement

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

Justification for new course:

The Department currently teaches a networking course and this is an excellent follow up course. Very few departments teach a course in Internet services that is hands-on.

Semester(s) previously taught

Co-Listed Courses:

Course Reviewer Comments

Key: 4786

Preview Bridge

Course Change Request

New Experimental Course Proposal

Date Submitted: 03/17/21 4:45 pm

Viewing: **GEO ENG 6001.006 : Advanced Remote Sensing Methods in Hydrology**

File: 4799

Last edit: 03/26/21 3:17 pm

Changes proposed by: smithryang

Requested Effective Change Date	Fall 2021
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Geological Engineering (GEO ENG)
Course Number	6001
Topic ID	006
Experimental Title	Advanced Remote Sensing Methods in Hydrology
Experimental Abbreviated Course Title	Remote Sensing Hydrology
Instructors	Ryan Smith

Experimental Catalog Description

In Workflow

1. **RGEOSENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. CAT entry
8. Registrar

Approval Path

1. 03/17/21 6:01 pm David Borrok (borrokd): Approved for RGEOSENG Chair
2. 03/18/21 8:35 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 03/26/21 3:17 pm Stephen Raper (sraper): Approved for

Engineering DSCC Chair

Students will learn about methods for monitoring the flux and condition of surface water and groundwater with airborne and spaceborne sensors. Thermal, passive microwave, microwave radar and gravimetric sensors will be used. Problems such as groundwater depletion, slope stability and flooding will be investigated using advanced GIS tools.

Prerequisites

Experience with GIS is required. This requirement can be met by taking either GE3148 or GE5144, or equivalent course or work experience. Interested students who are unsure if they have a proper background for the course are encouraged to email the instructor.

Field Trip Statement

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

Justification for new course:

Remote sensing hydrology is a growing field with many practical applications for both graduate students and advanced undergraduate students. However, there are currently no courses in the catalog that cover this material in sufficient depth for a student to become proficient. The Geological Engineering, Geology, Environmental Engineering, Biology and Computer Science departments will all likely have students that have interest in using some or all of the tools discussed in this course.

Co-listed with Geo Eng 5001.

Semester(s) previously taught

0

Co-Listed Courses:

Course Reviewer

Comments

sraper (03/26/21 3:17 pm): need to discuss or modify this prereq.

Key: 4799

Preview Bridge

Course Change Request

New Experimental Course Proposal

Date Submitted: 03/02/21 4:02 pm

Viewing: **MUSIC 2001.005 : Music and the World Wars**

File: 4795

Last edit: 03/03/21 6:28 am

Changes proposed by: karmannc

Requested Effective Change Date	Spring 2022
Department	Arts, Languages, & Philosophy
Discipline	Music (MUSIC)
Course Number	2001
Topic ID	005
Experimental Title	Music and the World Wars
Experimental Abbreviated Course Title	Music and the World Wars
Instructors	Kyle Wernke

Experimental Catalog Description

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. CAT entry
8. Registrar

Approval Path

1. 03/02/21 4:28 pm Audra Merfeld-Langston (audram): Approved for RPHILOSO Chair
2. 03/03/21 6:29 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 03/03/21 8:04 am Petra Dewitt (dewittp):

Approved for Arts & Humanities
DSCC Chair

In this course we will examine music as a catalyst for and reaction to the World Wars. By looking at music through a variety of lenses including economic, emotional, nationalistic, and propagandist we will come to conclusions about music's role in a world ravaged by violence and war.

Prerequisites

Field Trip Statement

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

Justification for new course:

Learning about the way art impacts history is a key component of creating globally conscious adults. Through this course we will look at history through an artistic lens and encourage students to be mindful of the way they engage with art and allow it to influence themselves and their culture.

Semester(s) previously taught

Co-Listed Courses:

Course Reviewer Comments

Key: 4795

Preview Bridge

Course Change Request

New Experimental Course Proposal

Date Submitted: 02/18/21 8:46 am

Viewing: **SPANISH 4001.001 : Literature, Science, and Technology in Contemporary Spanish-Speaking Cultures**

File: 4791

Last edit: 02/18/21 11:53 am

Changes proposed by: karmannc

Requested Effective Change Date	Fall 2021
Department	Arts, Languages, & Philosophy
Discipline	Spanish (SPANISH)
Course Number	4001
Topic ID	001
Experimental Title	Literature, Science, and Technology in Contemporary Spanish-Speaking Cultures
Experimental Abbreviated Course Title	Span Lit, Sci, & Tech
Instructors	Emilia Barbosa

Experimental Catalog

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. CAT entry
8. Registrar

Approval Path

1. 02/18/21 11:31 am
   Audra Merfeld-Langston (audram): Approved for RPHILOSO Chair
2. 02/18/21 11:53 am
   Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

Description

3. 02/18/21 2:27 pm
Petra Dewitt (dewittp): Approved for Arts & Humanities
DSCC Chair

Discussion of unique texts, representations, and collections from distinct Spanish-speaking societies. Consideration of the social and cultural functions of science and technology through the lens of literature. Inquiry about how different societies have equated advancement and progress with challenges, solutions, and controversy.

Prerequisites

Any Spanish 2000 or 3000-level course or equivalent.

Field Trip
Statement

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

Justification for new course:

Justification for new course: Expanding course offerings to meet the needs of S&T students and in particular, to contribute to the development of the new Global Engineering Program.

Semester(s) previously taught

Co-Listed Courses:

Course Reviewer Comments

Key: 4791

Preview Bridge

Course Change Request

New Experimental Course Proposal

Date Submitted: 03/15/21 3:32 pm

Viewing: **STAT 4001.001 : Introduction to Statistical Data Science**

File: 4798

Last edit: 03/15/21 3:57 pm

Changes proposed by: prunnion

Requested Effective Change Date	Spring 2022
Department	Mathematics & Statistics
Discipline	Statistics (STAT)
Course Number	4001
Topic ID	001
Experimental Title	Introduction to Statistical Data Science
Experimental Abbreviated Course Title	Intro Stat Data Science
Instructors	Koob

Experimental Catalog Description

In Workflow

1. **RMATHEMA Chair**
2. **CCC Secretary**
3. **Sciences DSCC Chair**
4. **Pending CCC Agenda post**
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. CAT entry
8. Registrar

Approval Path

1. 03/15/21 3:43 pm vsam: Approved for RMATHEMA Chair
2. 03/15/21 3:57 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 03/19/21 12:49 pm Katie Shannon (shannonk): Approved for

Sciences DSCC Chair

A course introducing students to key data science methodologies and inferential thinking. A set of tools for modeling and understanding complex datasets will be developed. Methods such as regression, cross-validation, classification, tree-based methods, support vector machines, and unsupervised learning will be covered.

Prerequisites

Stat 3113 or Stat 3115 or Stat 3117; Math 2222 or Math 3108; Comp Sci 1500 or Comp Sci 1570

Field Trip Statement

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

Justification for new course:

Data science is a new field which is now used in statistical data analysis. This courses fill a gap in the university's offerings by providing an introductory look at statistical data science methods which can be used by mathematicians, statisticians, computer scientists, and others seeking to understand data.

Semester(s) previously taught

None

Co-Listed Courses:

Course Reviewer Comments

Key: 4798

Preview Bridge

Course Change Request

New Experimental Course Proposal

Date Submitted: 02/19/21 10:37 am

Viewing: **TCH COM 5001.003 : AI and Smart Technology Communication**

File: 4793

Last edit: 02/19/21 10:55 am

Changes proposed by: kswenson

Requested Effective Change Date	Fall 2021
Department	English and Technical Communication
Discipline	Technical Communication (TCH COM)
Course Number	5001
Topic ID	003
Experimental Title	AI and Smart Technology Communication
Experimental Abbreviated Course Title	AI Communication
Instructors	David Wright

Experimental Catalog Description

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. CAT entry
8. Registrar

Approval Path

1. 02/19/21 10:42 am
   Kristine Swenson (kswenson): Approved for RENGLISH Chair
2. 02/19/21 10:55 am
   Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 02/19/21 11:38 am

Petra Dewitt (dewittp): Approved for Arts & Humanities
DSCC Chair

The course focuses on theoretical constructs associated with artificial intelligence and smart technology communications. Students will master terminology, technologies, and hands-on exercises designed to provide an understanding of the history, present, and future of communication between humans and intelligent devices and among intelligent devices.

Prerequisites

One semester of college composition or technical writing, or graduate standing.

Field Trip Statement

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

Justification for new course:

We are expanding our 5000-level offerings to meet the demands of graduate students who need additional courses at that level and who will be well-served by this TC course with an AI/smart technology focus, which are areas of strength on campus.

Semester(s) previously taught

Co-Listed Courses:

Course Reviewer Comments

Key: 4793

Preview Bridge

PAGE REVIEW Hide Changes | View Changes By: All Changes

Miscellaneous Change Request

New Miscellaneous Request

Date Submitted: 03/08/21 3:50 pm

Viewing: **5 : School of Earth and Minerals**

Last edit: 03/17/21 2:05 pm

Changes proposed by: borrokd

Request Type	Name Change
Title	School of Earth and Minerals
Description	The GGPE Department (in combination with the Mining and Explosives program) would like to change our names to the “School of Earth and Minerals”. This change would not impact any of our program, degree, or certificate names. The formation of the School has been voted on by our respective faculty members and supported by the Dean and Provost (see attachments). A majority of GGPE faculty members support the “Earth and Minerals” title. Some preferred an earlier proposed title “Earth, Energy, and Minerals”, but that was untenable for the reasons stated in the Dean’s memo (attached). The advisory boards in GGPE have been consulted and support the formation of the school. The “Earth and Minerals” name was discussed with our GGPE department-level board and they were amenable to the new name.
Supporting Documentation	Unit Reorganization - Dean's letter.pdf Memo to the Dean - School Formation.pdf

Course Reviewer Comments

Key: 5

In Workflow

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

Approval Path

1. 03/09/21 10:52 am
   Kristy Giacomelli-Feys (kristyg): Approved for Registrar
2. 03/09/21 10:56 am
   David Borrok (borrokd): Approved for

Miscellaneous Change Request

New Miscellaneous Request

Date Submitted: 03/08/21 5:30 pm

Viewing: **6 : School of Earth and Minerals**

Last edit: 03/17/21 2:05 pm

Changes proposed by: kabp3

Request Type	Name Change
Title	School of Earth and Minerals
Description	The Mining & Explosives Engineering programs (in combination with the GGPE Department) would like to change our names to the “School of Earth and Minerals”. This change will not impact the names of our programs, degrees, or certificates. Our respective faculty members have voted on the formation of the School and the Dean and Provost are supportive of the idea (see attachments). All mining & explosives engineering faculty members support the “Earth and Minerals” name. We have consulted our industry advisory board and they have indicated their support for the formation of the school.
Supporting Documentation	Memo to the Dean - School Formation.pdf Unit Reorganization - Dean's letter.pdf

Course Reviewer Comments