Minutes of the Campus Curricula Committee Meeting
December 16, 2020
8:15am, Virtual Zoom
(For Faculty Senate Meeting of January 28, 2021)

Attendees: Steve Raper, Petra Dewitt, Katie Shannon, Michael Gosnell, Cecil Eng Huang Chua, Michael Davis, Kyle Perry, Kristy Giacomelli-Feys, Marita Tibbetts, Beth Kania-Gosche, Paul Runnion

The following curriculum forms were discussed and approved:

Course Change Forms:

File: 53.2	BIO SCI 1219 : General Biology Lab
File: 1778.4	BUS 5111 : Business Negotiations
File: 2317.10	BUS 5150 : Customer Focus and Satisfaction
File: 4350.10	BUS 5910 : Privacy and Information Security
File: 668.1	BUS 6121 : Leadership
File: 4069.5	COMP SCI 3601 : Digital Forensics
File: 4748	EDUC 1055 : Introduction to Early Childhood Education
File: 4745	EDUC 1820 : Early Childhood Program Management
File: 1174.3	EDUC 2310 : Education Of The Exceptional Child
File: 4746	EDUC 2401 : School, Family, and Community Partnerships
File: 4747	EDUC 2440 : Observation and Assessment of Young Children
File: 2494.12	EDUC 3203 : Introduction to STEM Education
File: 941.3	EDUC 3211 : Child Development
File: 1771.6	EDUC 3215 : Teaching Reading in Elementary and Early Childhood Settings
File: 1758.10	EDUC 3216 : Instructional Literacy in the Content Area
File: 1869.9	EDUC 3217 : Analysis and Correction of Reading Difficulties
File: 1870.7	EDUC 3218 : Language Arts for Elementary and Early Childhood Teachers
File: 4517.10	EDUC 3220 : Teaching Science in the Elementary and Early Childhood Classroom
File: 2541.12	EDUC 3221 : Methods of Teaching Math
File: 176.8	EDUC 3280 : Instructional Strategies in the Content Area
File: 4519.8	EDUC 3430 : Diverse Literature for Children
File: 4518.7	EDUC 3530 : Teaching Integrated Social Studies and Humanities
File: 1189.7	EDUC 4299 : Student Teaching
File: 4754	ELEC ENG 5355 : Process Control System Safety, Security and Alarms
File: 842.1	ELEC ENG 5500 : Electric Drive Systems
File: 306.1	ELEC ENG 5570 : Extra High Voltage Engineering
File: 2211.1	ELEC ENG 6500 : AC Drives: Dynamic and Control
File: 4308.9	FRENCH 4330 : Professional Business French

File: 2491.4   HISTORY 4097 : Senior Project
File: 925.11   IS&T 4641 : Digital Commerce and IoT Analytics
File: 2412.1   IS&T 5251 : Management and Leadership of Technological Innovation
File: 4764   IS&T 6251 : Technological Innovation, Entrepreneurship, and Economic Development
File: 4760   MATH 1210 : Calculus I-A
File: 4761   MATH 1211 : Calculus I-B
File: 2178.3   MATH 1212 : Survey of Calculus
File: 116.5   MATH 1214 : Calculus I
File: 1695.5   MATH 1215 : Calculus II
File: 340.4   MATH 2222 : Calculus III
File: 4757   MATH 5601 : Introduction to Numerical Analysis
File: 4061.3   MATH 5602 : Mathematical Foundation of Finite Element Methods
File: 1903.10   MET ENG 3220 : Introduction To Extractive Metallurgy
File: 2639.1   NUC ENG 3221 : Reactor Fluid Mechanics
File: 1981.1   NUC ENG 4312 : Nuclear Radiation Measurements and Spectroscopy
File: 2371.4   NUC ENG 4496 : Nuclear System Design I
File: 4750   POL SCI 4320 : Policy for Science, Technology, and Innovation

Program Change Forms:
File: 239.16   ANA&DTA-MI : Business Analytics and Data Science Minor
File: 253.9   AI-MI : Minor in Artificial Intelligence and Machine Learning in Business
File: 142.47   AP MATH-BS : Applied Mathematics BS
File: 230.18   AUTOENG-MI : Minor in Automation Engineering
File: 146.26   BIO SC-BA : Biological Sciences BA
File: 147.18   BIO SC-BS : Biological Sciences BS
File: 247.12   CYBERMG-MI : Cybersecurity Management and Information Assurance Minor
File: 37.3   E/T ECN-MI : E/T Economics Minor
File: 76.3   IN ECN-MI : International Economics Minor
File: 73.9   IS&T-MS : Info Science & Tech MS
File: 123.8   PRE-MED-MI : Pre-Medicine Minor
File: 136.1   THEATRE-MI : Theatre Minor
File: 292.6   AI-CT : AI, Mach Lrn & Auto for Bus CT
File: 254.10   AUTOEN-CTU : Undergraduate Certificate in Automation Engineering
File: 281.2   AUTOENG-CT : Automation Eng & PLC CT
File: 294.2   DATA WR-CT : Business Intelligence CT
File: 297.2   DSCMGMT-CT : Digital Supply Chain Mgmt CT
File: 298.2   E&S COM-CT : Elec & Social Commerce CT
File: 288.2   ENT&TEC-CT : Entrepreneur & Tech Innovat CT
File: 369   PROPOSED : Advanced Materials for Sustainable Infrastructure CT
File: 370   PROPOSED : Building Systems Engineering CT
File: 372   PROPOSED : Chemical Process Engineering CT

File: 371   PROPOSED : Surface Water Resources CT
File: 368   PROPOSED : UCT - Technology, Philosophy, and Ethical Futures

Experimental Course forms:

File: 4749   BIO SCI 5001.007 : Forest Insect Diversity & Ecology
File: 4762   COMP ENG 5001.003 : Introduction to Convex Optimization
File: 4755   COMP SCI 5001.012 : Fundamentals of Cyber-Physical Systems
File: 4756   COMP SCI 6001.007 : Advances in Cyber-Physical Systems
File: 4758   MATH 6001.008 : Finite Difference Methods for Partial Differential Equations
File: 4759   PET ENG 6001.012 : Advanced Well and Drilling Technology

The meeting adjourned at 10:05am.

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

Course Change Request

Date Submitted: 11/09/20 3:55 pm

Viewing: **BIO SCI 1219 : General Biology Lab**

File: 53.2

Last approved: 04/30/14 3:55 am

Last edit: 11/10/20 6:25 am

Changes proposed by: shannonk

Programs
referencing this
course

  PRE-MED-MI: Pre-Medicine Minor

  AP MATH-BS: Applied Mathematics BS

  BIO SC-BA: Biological Sciences BA

  BIO SC-BS: Biological Sciences BS

  CHEM-BA: Chemistry BA

  CHEM-BS: Chemistry BS

  CMP SC-BS: Computer Science BS

Other Courses
referencing this
course

  In The Prerequisites:

  BIO SCI 2389 : Plant Biology Laboratory

Requested Effective Change Date	**Fall 2021** ~~08/01/2014~~
Department	Biological Sciences

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. 11/09/20 4:05 pm David Duvernell (duvernelld): Approved for RBIOLSCI Chair
2. 11/10/20 6:26 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

Discipline   Biological Sciences (BIO SCI)

Course Number   1219

Title

  General Biology Lab

Abbreviated   General Biology Lab
Course Title

Catalog
Description

3. 11/17/20 12:54
   pm
   Katie Shannon
   (shannonk):
   Approved for
   Sciences DSCC
   Chair
4. 11/25/20 7:57 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for
   Pending CCC
   Agenda post
5. 12/16/20 11:18
   am
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Meeting Agenda
6. 12/16/20 12:36
   pm
   Stephen Raper
   (sraper):
   Approved for
   Campus Curricula
   Committee Chair

History

1. Apr 30, 2014 by
   lahne (53.1)

  The laboratory work accompanying general biology consists of experiments designed
  to supplement and extend lectures in General Biology and Principles of Biology.

Prerequisites
  Preceded or accompanied by either Bio Sci 1113 or Bio Sci 1213.

Field Trip
Statement

Credit Hours   LEC: **0** ~~1~~   LAB: 1   IND: 0   RSD: 0

   Total: **1** ~~2~~

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

Majors

Elective for   No

Majors

Justification for

change:

   Instead of offering a "lab lecture" and then lab, the lecture section will be eliminated

   and there will be one lab session per week

Semesters

previously

offered as an

experimental

course

Co-Listed

Courses:

Course Reviewer

Comments

   tibbettsmg (11/10/20 6:25 am): updated eff term to FS21. MT

Key: 53

Preview Bridge

Course Change Request

Date Submitted: 08/27/20 8:38 am

Viewing: **BUS 5111** ~~4111~~ **: Business Negotiations**

File: 1778.4

Last approved: 11/03/14 3:53 am

Last edit: 11/16/20 12:09 pm

Changes proposed by: cecq8z

> Programs
> referencing this
> course
>   MGTLEAD-CT: Management and Leadership

Requested Effective Change Date	**Fall 2021** ~~01/13/2015~~
Department	Business and Information Technology
Discipline	Business (BUS)
Course Number	**5111** ~~4111~~
Title Business Negotiations	
Abbreviated Course Title	Business Negotiations

> Catalog
> Description

In Workflow

1. **RBUSADMN 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. 11/16/20 10:28 am
   siauk: Approved for RBUSADMN Chair
2. 11/16/20 12:09 pm
   Marita Tibbetts (tibbettsmg):

Approved for CCC
Secretary

3. 11/16/20 12:17
   pm
   Cecil Eng Huang
   Chua (cchua):
   Approved for
   Social Sciences
   DSCC Chair

4. 11/25/20 7:58 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for
   Pending CCC
   Agenda post

5. 12/16/20 11:18
   am
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Meeting Agenda

6. 12/16/20 12:36
   pm
   Stephen Raper
   (sraper):
   Approved for
   Campus Curricula
   Committee Chair

History

1. Nov 3, 2014 by
   barryf (1778.1)

The purpose of this course is to understand the practices and processes of
negotiation for negotiating successfully in a variety of settings. The course is

designed to be relevant to the broad spectrum of negotiation problems faced by managers, consultants, etc. Because almost everyone negotiates all the time, this course is relevant to almost any student.

Prerequisites

Junior standing or above. ~~At least Junior status.~~

Field Trip
Statement

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

Required for Majors	No
Elective for Majors	Yes

Justification for change:

This is part of a department course renumbering exercise to clean up the catalog to reduce enrollment confusion.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (11/16/20 12:09 pm): missed deadline for Sp21. Changed to FS21.mt

Key: 1778

Preview Bridge

Course Change Request

Date Submitted: 11/16/20 2:39 pm

Viewing: **BUS 5150** ~~4150~~ **: Customer Focus and Satisfaction**

File: 2317.10

Last approved: 09/29/14 4:09 am

Last edit: 12/16/20 1:53 pm

Changes proposed by: cecq8z

Programs
referencing this
course
[ENT&TEC-CT: Entrepreneur & Tech Innovat CT](#)

Requested Effective Change Date	**Fall 2021** ~~08/01/2014~~
Department	Business and Information Technology
Discipline	Business (BUS)
Course Number	**5150** ~~4150~~
Title	Customer Focus and Satisfaction
Abbreviated Course Title	Customer Focus & Satisfaction

Catalog
Description

In Workflow

1. **RBUSADMN 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. 11/17/20 12:19 am
   siauk: Approved for RBUSADMN Chair
2. 11/17/20 6:04 am
   Marita Tibbetts (tibbettsmg):

Approved for CCC Secretary

3. 11/17/20 9:29 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

4. 11/25/20 7:59 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

5. 12/16/20 1:54 pm Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

6. 12/16/20 2:31 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

History

1. May 3, 2014 by barryf (2317.1)
2. Sep 29, 2014 by lahne (2317.8)

Major emphasis is given to the concept of customer focus, with coverage of techniques for obtaining customer needs, measuring customer satisfaction,

developing products and services to satisfy customers, and maximizing the benefits of customer feedback. A semester long HoQ project will be done.

Prerequisites

Mkt ~~MKT~~ 3110 or **Mkt** ~~MKT~~ 3105 or **Eng Mgt** ~~ENG MGT~~ 3510.

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:

   In line with departmental reorganization of numbering

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

   ~~MKT 4150~~ - ~~Course Not Found~~

   MKT 5150 - **Customer Focus and Satisfaction**

Course Reviewer
Comments

Course Change Request

Date Submitted: 08/27/20 8:39 am

Viewing: **BUS 5910 : Privacy and Information Security** ~~Law~~

File: 4350.10

Last approved: 04/03/17 3:15 am

Last edit: 11/16/20 12:21 pm

Changes proposed by: cecq8z

Programs
referencing this
course

[MGMT-MI: Management Minor](#)
[CYBERMG-MI: Cybersecurity Management and Information Assurance Minor](#)
[CYBERMG-CT: Cyber Mgmt & Info Assurance CT](#)
[IST-BS: Information Science and Tch BS](#)

Requested Effective Change Date	**Fall 2021** ~~08/14/2017~~
Department	Business and Information Technology
Discipline	Business (BUS)
Course Number	5910
Title	Privacy and Information Security ~~Law~~
Abbreviated Course Title	Pvcy&Info Security ~~Law~~

In Workflow

1. **RBUSADMN 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. 11/16/20 10:29 am
   siauk: Approved for RBUSADMN Chair
2. 11/16/20 12:21 pm
   Marita Tibbetts (tibbettsmg):

Catalog
Description

Approved for CCC
Secretary

3. 11/16/20 12:30
   pm
   Cecil Eng Huang
   Chua (cchua):
   Approved for
   Social Sciences
   DSCC Chair

4. 11/25/20 8:00 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for
   Pending CCC
   Agenda post

5. 12/16/20 11:18
   am
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Meeting Agenda

6. 12/16/20 12:36
   pm
   Stephen Raper
   (sraper):
   Approved for
   Campus Curricula
   Committee Chair

History

1. Apr 3, 2017 by
   Barry Flachsbart
   (barryf)

Explores issues concerning the use, disclosure, and protection of information
(personal, organizational, health, and financial) from a legal perspective. A focus on
understanding, planning, protecting, and responding to data breaches and other
information risk and threats. Case studies based on litigation are reviewed and
analyzed. Assumes MIS familiarity.

Prerequisites

Field Trip
Statement

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

Required for Majors	No

Elective for Majors	Yes

Justification for
change:
  Part of a departmental exercise to clean up the course catalog to reduce enrollment
  confusion..

Semesters
previously
offered as an
experimental
course
  F15 (6 enrolled students) and F16 (4 enrolled students) as IS&T 5001. We believe it is
  more appropriately designated as a BUS course.

Co-Listed
Courses:

Course Reviewer
Comments
  tibbettsmg (11/16/20 12:11 pm): changed to FS21. mt

Preview Bridge

Course Change Request

Date Submitted: 08/27/20 8:39 am

Viewing: **BUS 6121 : ~~Teambuilding and~~ Leadership**

File: 668.1

Last edit: 12/16/20 1:25 pm

Changes proposed by: cecq8z

> Programs
> referencing this
> course
>
> BUS AD-MBA: Business Administration MBA
>
> MGTLEAD-CT: Management and Leadership

Requested Effective Change Date	**Fall 2021** ~~08/01/2014~~
Department	Business and Information Technology
Discipline	Business (BUS)
Course Number	6121
Title	~~Teambuilding and~~ Leadership
Abbreviated Course Title	~~Teambuilding and~~ Leadership

> Catalog
> Description

In Workflow

1. **RBUSADMN 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. 11/16/20 10:29 am
   siauk: Approved for RBUSADMN Chair
2. 11/16/20 2:00 pm
   Marita Tibbetts (tibbettsmg):

Approved for CCC Secretary

3. 11/16/20 2:34 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

4. 11/25/20 8:00 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

5. 12/16/20 1:25 pm Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

6. 12/16/20 1:32 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

This class will **explore leadership challenges, tactics,** ~~teach students how to work well in teams~~ and **strategies for working within,** ~~lead teams~~ and **leading, teams and** organizations. Management, networking, presentation skills, and sustainable business practices will be covered. MBA core.

Prerequisites
  Graduate standing.

Field Trip
Statement

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

Justification for change:

  Title change to make course more descriptive.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

  tibbettsmg (11/16/20 2:00 pm): eff. term changed to FS21. mt

Key: 668

Preview Bridge

Course Change Request

Date Submitted: 10/31/20 8:21 am

Viewing: **COMP SCI 3601 : Digital Forensics**

File: 4069.5

Last approved: 07/07/14 3:48 am

Last edit: 11/05/20 11:03 am

Changes proposed by: zhupe

Requested Effective Change Date	**Fall 2021** ~~01/13/2015~~
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	3601
Title	Digital Forensics
Abbreviated Course Title	Digital Forensics

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. 11/05/20 10:52 am
   Samuel Frimpong (frimpong):
   Approved for RCOMPSCI Chair
2. 11/05/20 11:04 am
   Marita Tibbetts (tibbettsmg):

Approved for CCC
Secretary

3. 11/20/20 12:30
   pm
   Stephen Raper
   (sraper):
   Approved for
   Engineering DSCC
   Chair

4. 11/25/20 8:01 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for
   Pending CCC
   Agenda post

5. 12/16/20 11:18
   am
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Meeting Agenda

6. 12/16/20 12:36
   pm
   Stephen Raper
   (sraper):
   Approved for
   Campus Curricula
   Committee Chair

History

1. Jul 7, 2014 by
   Daniel Tauritz
   (tauritzd)

Planning/managing incidents and response related to digital forensics; identifying, collecting, and preserving digital evidence; live/dead approaches covering systems as a whole emphasizing file system forensics; analysis and interpretation of artifacts culminating in a final project consisting of a collection, analysis, and report; legal and ethical issues.

Prerequisites

A **grade of** "C" or better ~~grade~~ in **Comp Sci** ~~both COMP SCI 3600 and COMP SCI~~ 3800.

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:

CS3600 was changed to CS4610 in Spring 2020. CS4610 is further above what is needed in CS3601. CS3601 really just needs the prerequisite of CS3800.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Key: 4069

Course Change Request

New Course Proposal

Date Submitted: 10/12/20 10:51 am

Viewing: **EDUC 1055 : Introduction to Early Childhood Education**

File: 4748

Last edit: 12/16/20 1:26 pm

Changes proposed by: bakm75

Requested Effective Change Date	Fall 2021
Department	Teacher Education and Certification
Discipline	Education (EDUC)
Course Number	1055
Title	
Introduction to Early Childhood Education	
Abbreviated Course Title	Intro to EC

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. 10/12/20 11:06 am
   Beth Kania-Gosche
   (bkaniagosche):
   Approved for
   REDUCATION
   Chair

2. 10/12/20 1:43 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

3. 10/14/20 7:59 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

4. 11/25/20 8:09 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

5. 12/16/20 1:26 pm Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

6. 12/16/20 1:32 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

This course will introduce students to the standards for early childhood programs, emphasizing family partnerships and community resources. Students will survey research on play-based learning, emerging literacy, and family engagement and apply research concepts to design developmentally appropriate activities and spaces.

Prerequisites

Field Trip Statement				
Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	Yes			
Elective for Majors	Yes			

Justification for new course:

We need approved courses in the catalog to be able to submit an early childhood program to DESE. We hope to have these courses approved for submission now so the early childhood certification program will be approved by the time the on campus center opens next year.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 4748

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 10/12/20 9:15 am

Viewing: **EDUC 1820 : Early Childhood Program Management**

File: 4745

Last edit: 12/16/20 1:26 pm

Changes proposed by: bakm75

Requested Effective Change Date	Fall 2021
Department	Teacher Education and Certification
Discipline	Education (EDUC)
Course Number	1820
Title	
Early Childhood Program Management	
Abbreviated Course Title	EC Program Admin

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. 10/12/20 9:20 am Beth Kania-Gosche (bkaniagosche): Approved for REDUCATION Chair
2. 10/12/20 1:45 pm Marita Tibbetts

(tibbettsmg): Approved for CCC Secretary

3. 10/14/20 7:59 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

4. 11/25/20 8:10 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

5. 12/16/20 1:27 pm Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

6. 12/16/20 1:32 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

This course is an examination of the regulatory requirements of early childhood programs. Students will discuss ethical issues and advocacy strategies. Students will practice administration skills such as budget management for early childhood programs. Personnel management to promote a positive school culture will be discussed.

Prerequisites
Educ 1221.

Field Trip
Statement

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

Required for Majors	Yes
Elective for Majors	Yes

Justification for
new course:

This course will be used for the early childhood certification currently under development. In order to submit the program to DESE, we need approved course numbers and descriptions. This course will be required for a new undergraduate certificate in early childhood education and eventually be required for the emphasis in early childhood for the B.S. in Education which is currently being reviewed by UM System.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Key: 4745

Preview Bridge

Course Change Request

Date Submitted: 10/07/20 11:10 am

Viewing: **EDUC 2310** ~~4310~~ : Education ~~Psychology~~ Of The Exceptional Child

File: 1174.3

Last approved: 01/18/19 5:02 am

Last edit: 12/16/20 1:29 pm

Changes proposed by: bakm75

Requested Effective Change Date	**Fall 2021** ~~01/07/2019~~
Department	Teacher Education and Certification
Discipline	Education (EDUC)
Course Number	**2310** ~~4310~~
Title	**Education** ~~Psychology~~ Of The Exceptional Child
Abbreviated Course Title	**Educ** ~~Psyc~~ Of The Except Child

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. 10/07/20 11:11 am
   Beth Kania-Gosche (bkaniagosche): Approved for REDUCATION Chair

2. 10/07/20 11:56 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Secretary
3. 10/14/20 7:59 am
   Cecil Eng Huang
   Chua (cchua):
   Approved for
   Social Sciences
   DSCC Chair
4. 11/25/20 8:10 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for
   Pending CCC
   Agenda post
5. 12/16/20 1:29 pm
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Meeting Agenda
6. 12/16/20 1:32 pm
   Stephen Raper
   (sraper):
   Approved for
   Campus Curricula
   Committee Chair

History

1. Jan 18, 2019 by
   ershenb (1174.1)

Study of the psychology of children **with emotional, behavioral, cognitive or other differences.** ~~on both ends of the educational spectrum.~~ The course presents the fundamentals of providing services as well as understanding ~~the abilities and disabilities of~~ children classified as exceptional. **Implications** ~~Includes coverage~~ of ~~various disabilities, and the implications of dealing with~~ personal, family and classroom issues **will be discussed as well as assessment procedures for identification.**

Prerequisites
~~Psych 1101.~~

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:

We would like to offer these courses separately instead of co-listing. Both courses (PSYCH 4310 and the newly numbered EDUC 2310) will still fulfill requirements for education.

A very similar course is offered at every community college at the 200 level. Offering this course at the 400 level presents a transfer issue, especially since the courses are fulfilling the same DESE competency and the content appears to be similar.

We have a new faculty member with experience in special education; she will be able to provide real world examples for future teachers. The legal compliance of special education is an essential area of training for future teachers.

Semesters
previously
offered as an

experimental

course

Co-Listed

Courses:

~~PSYCH 4310~~ - ~~Psychology Of The Exceptional Child~~

Course Reviewer

Comments

tibbettsmg (10/07/20 11:55 am): eff date updated to FS21. MT

tibbettsmg (12/16/20 1:28 pm): updated title and abb. title per Kania-Gosche. MT

Key: 1174

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 10/12/20 8:39 am

Viewing: **EDUC 2401 : School, Family, and Community Partnerships**

File: 4746

Last edit: 12/16/20 1:29 pm

Changes proposed by: bakm75

Requested Effective Change Date	Fall 2021
Department	Teacher Education and Certification
Discipline	Education (EDUC)
Course Number	2401
Title	
School, Family, and Community Partnerships	
Abbreviated Course Title	School, Family, Comm

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. 10/12/20 9:20 am Beth Kania-Gosche (bkaniagosche): Approved for REDUCATION Chair
2. 10/12/20 1:46 pm Marita Tibbetts

(tibbettsmg): Approved for CCC Secretary

3. 10/14/20 7:59 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

4. 11/25/20 8:11 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

5. 12/16/20 1:30 pm Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

6. 12/16/20 1:32 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

Students will examine available community resources and their impact on children and families. Students will practice strategies to support family engagement. Effective communication and collaboration with diverse families will be emphasized.

Prerequisites

Educ 1040 and Educ 1174 and Educ 1820.

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	Yes			
Elective for Majors	Yes			

Justification for new course:

This course will be used in the new early childhood program currently under development. We need these courses to have permanent numbers so we can submit them to DESE for approval. The education program does not currently have a degree, so we did not check the boxes for a major requirement.

However, when the B.S. in education degree is approved (it is with University of Missouri system right now), this course will eventually be required for an early childhood emphasis area of that degree.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 4746

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 10/12/20 8:54 am

Viewing: **EDUC 2440 : Observation and Assessment of Young Children**

File: 4747

Last edit: 12/16/20 1:30 pm

Changes proposed by: bakm75

Requested Effective Change Date	Fall 2021
Department	Teacher Education and Certification
Discipline	Education (EDUC)
Course Number	2440
Title	
	Observation and Assessment of Young Children
Abbreviated Course Title	Obs & Assmnt Young Child

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. 10/12/20 9:30 am
   Beth Kania-Gosche (bkaniagosche): Approved for REDUCATION Chair
2. 10/12/20 1:47 pm
   Marita Tibbetts

(tibbettsmg): Approved for CCC Secretary

3. 10/14/20 7:59 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

4. 11/25/20 8:12 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

5. 12/16/20 1:30 pm Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

6. 12/16/20 1:32 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

Students will discuss the purpose, benefits, and uses of informal and formal assessments of children. Students will practice interpreting and communicating assessment results while maintaining confidentiality. Assessment results will be used to plan developmentally appropriate curriculum. Students will administer an observation assessment in the field.

Prerequisites
Educ 1040.

Field Trip
Statement

Credit Hours Total: 3	LEC: 2	LAB: 1	IND: 0	RSD: 0
Required for Majors	Yes			
Elective for Majors	Yes			

Justification for
new course:

  This course will be used for the early childhood program currently in development.
  We need a permanent course number and description to send to DESE for approval.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Key: 4747

Course Change Request

Date Submitted: 10/07/20 8:42 am

Viewing: **EDUC 3203 : Introduction to STEM Education**

File: 2494.12

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

Last edit: 12/16/20 1:31 pm

Changes proposed by: bakm75

Programs
referencing this
course
　PROPOSED: Education

Requested Effective Change Date	Fall **2021** ~~2019~~
Department	Teacher Education and Certification
Discipline	Education (EDUC)
Course Number	3203
Title	

　Introduction to STEM Education

Abbreviated Course Title	Intro to STEM Education

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. 10/07/20 10:40 am
   Beth Kania-Gosche (bkaniagosche): Approved for REDUCATION Chair

2. 10/07/20 11:57 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Secretary

3. 10/14/20 7:59 am
   Cecil Eng Huang
   Chua (cchua):
   Approved for
   Social Sciences
   DSCC Chair

4. 11/25/20 8:13 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for
   Pending CCC
   Agenda post

5. 12/16/20 1:31 pm
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Meeting Agenda

6. 12/16/20 1:32 pm
   Stephen Raper
   (sraper):
   Approved for
   Campus Curricula
   Committee Chair

History

1. Mar 6, 2017 by
   dewittp (2494.1)

2. Mar 26, 2018 by
   schwartzem

Students will discuss and apply research on STEM education at the early childhood and elementary levels. Inquiry-based learning and critical thinking are emphasized. ~~A study of current methodologies for teaching in area of specialization.~~ Students are introduced to a variety of instructional programs including Project Lead the Way. **Students will observe STEM in an authentic environment and then implement instruction.**

Prerequisites
  Educ **3216** ~~3220.~~

Field Trip
Statement

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

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

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

Justification for
change:
  This course will be used for the new early childhood program that is being developed. The course description needed to be modified to include this age group and be more specific about content.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Key: 2494

Co-Listed
Courses:

Course Change Request

Date Submitted: 10/07/20 9:04 am

Viewing: **EDUC 3211 : Child Development** ~~Psychology~~

File: 941.3

Last approved: 01/18/19 5:02 am

Last edit: 12/16/20 1:31 pm

Changes proposed by: bakm75

Requested Effective Change Date	**Fall 2021** ~~01/07/2019~~
Department	Teacher Education and Certification
Discipline	Education (EDUC)
Course Number	3211
Title	Child **Development** ~~Psychology~~
Abbreviated Course Title	Child **Development** ~~Psychology~~

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. 09/15/20 9:50 am Beth Kania-Gosche (bkaniagosche): Rollback to Initiator
2. 10/07/20 10:48 am Beth Kania-

Gosche
(bkaniagosche):
Approved for
REDUCATION
Chair

3. 10/07/20 11:58
   am
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Secretary

4. 10/14/20 7:59 am
   Cecil Eng Huang
   Chua (cchua):
   Approved for
   Social Sciences
   DSCC Chair

5. 11/25/20 8:13 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for
   Pending CCC
   Agenda post

6. 12/16/20 1:31 pm
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Meeting Agenda

7. 12/16/20 1:32 pm
   Stephen Raper
   (sraper):
   Approved for
   Campus Curricula
   Committee Chair

History

1. Jan 18, 2019 by
   ershenb (941.1)

This course explores characteristics of children from birth to age eight, including language acquisition, creative expression, and physical, cognitive, and social-emotional development. ~~The psychological, intellectual, social, and physical development of children with emphasis on the cognitive and affectiveprocesses.~~The **impact of trauma on development** ~~theory, research and application~~ will be **emphasized.** ~~studied.~~ **The connection of cultural differences to development will also be discussed.**

Prerequisites
   Educ 1040 or Psych 1101.

Field Trip
Statement

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

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

Justification for change:
   This course is needed for the early childhood program currently in development. DESE no longer accepts Child Psychology; students take Developmental Psychology which is through the entire lifespan.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

bakm75 (09/15/20 9:50 am): Rollback: We are going to wait to see if we receive the early childhood center grant. This course would be needed for early childhood certification.

Key: 941

Preview Bridge

Course Change Request

Date Submitted: 10/07/20 9:26 am

Viewing: **EDUC 3215 : Teaching ~~of~~ Reading in Elementary and Early Childhood Settings ~~Middle School~~**

File: 1771.6

Last approved: 01/18/19 5:01 am

Last edit: 10/07/20 9:26 am

Changes proposed by: bakm75

Programs referencing this course
  PROPOSED: Education

Other Courses referencing this course
  In The Prerequisites:
  EDUC 3217 : Analysis and Correction of Reading Difficulties

Requested Effective Change Date	**Fall 2021** ~~01/07/2019~~
Department	Teacher Education and Certification
Discipline	Education (EDUC)
Course Number	3215
Title	

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. 10/07/20 10:47 am
   Beth Kania-Gosche (bkaniagosche): Approved for REDUCATION Chair

Teaching ~~of~~ Reading in Elementary and **Early Childhood Settings** ~~Middle School~~

Abbreviated Course Title: Tch Read Elem & Mid Sch

Catalog Description

2. 10/07/20 11:58 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 10/14/20 7:59 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 11/25/20 8:14 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 12/16/20 1:41 pm Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda
6. 12/16/20 2:31 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

History

1. Oct 31, 2016 by dewittp (1771.1)
2. Jan 18, 2019 by ershenb (1771.4)

This course introduces emergent literacy concepts and language acquisition. Students will apply research on phonological and phonemic awareness, fluency, comprehension, vocabulary, and text selection to their future classrooms. After observing the teaching of reading in an authentic setting, students will design and implement instruction. ~~Current materials, methods and teaching techniques in teaching reading in elementary and middle school grades.Emphasis on assessing elementary and middle students needs, individualizing programs based on needs, reading in the content areas, study skills and recreational reading as a lifetime habit.~~

Prerequisites
  Educ 1040.

Field Trip
Statement

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

Required for   Yes
Majors

Elective for   No
Majors

Justification for
change:
  The course description was adjusted to more clearly demonstrate alignment with DESE competencies. The course will be used in the early childhood program under current development.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer

Comments

Key: 1771

Preview Bridge

Course Change Request

Date Submitted: 10/07/20 9:29 am

Viewing: **EDUC 3216 : Instructional Literacy ~~Teaching Reading~~ in the Content Area**

File: 1758.10

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

Last edit: 12/16/20 1:41 pm

Changes proposed by: bakm75

Catalog Pages
referencing this
course
  Teacher Education and Certification

Programs
referencing this
course
  PHYSIC-BS: Physics BS
  AP MATH-BS: Applied Mathematics BS
  BIO SC-BA: Biological Sciences BA
  BUS&MS-BS: Business and Mgmt Systems BS
  CHEM-BA: Chemistry BA

  HIST-BA: History BA
  PSYCH-BA: Psychology BA
  PSYCH-BS: Psychology BS
  PROPOSED: Education
  ECON-BA: Economics BA

Other Courses
referencing this
course

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. 10/07/20 10:47 am
   Beth Kania-Gosche
   (bkaniagosche):
   Approved for
   REDUCATION
   Chair

In The Prerequisites:

[EDUC 3280 : Teaching Methods and Skills in Content Areas](#)

Requested Effective Change Date	Fall **2021** ~~2019~~
Department	Teacher Education and Certification
Discipline	Education (EDUC)
Course Number	3216

Title

  Instructional Literacy ~~Teaching Reading~~ in **the** Content Area

Abbreviated Course Title	Teach **Literacy** ~~Read~~ in Cont ~~Area~~

Catalog Description

2. 10/07/20 12:01 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

3. 10/14/20 7:59 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

4. 11/25/20 8:15 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

5. 12/16/20 1:41 pm Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

6. 12/16/20 2:31 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

History

1. Oct 31, 2016 by dewittp (1758.1)
2. Feb 4, 2019 by carterke (1758.5)

Vocabulary, comprehension, the writing process and other literacy skills will be reinforced. Classroom content texts will be evaluated. Students will create meaningful learning experiences and resources for a diverse student population. Differentiated instruction will be introduced, with specific focus on English Language Learners and struggling reader ~~For elementary, middle and secondary school teachers.Specific ways teachers can help students improve reading skills in content areas and ways reading can be taught in reading classes.~~

Prerequisites
  Educ 1040.

Field Trip
Statement
  Students will take a field trip to an elementary school for half a day to teach lessons.

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

Required for
Majors
　　　　　　　Yes ~~No~~

Elective for
Majors
　　　　　　　No

Justification for
change:
  This course description better informs students of the learning outcomes for the course. English Language Learners, reading difficulties, and differentiated instruction are all required components for DESE. This change makes the competencies easier to find by accrediting agencies and better reflects the course content. The change also reflects an emphasis on diversity which we have infused throughout the program.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Key: 1758

Preview Bridge

Course Change Request

Date Submitted: 10/07/20 9:37 am

Viewing: **EDUC 3217 : Analysis and Correction of Reading Difficulties**

File: 1869.9

Last approved: 01/18/19 5:01 am

Last edit: 12/16/20 1:42 pm

Changes proposed by: bakm75

Programs
referencing this
course

PROPOSED: Education

Requested Effective Change Date	**Fall 2021** ~~01/07/2019~~
Department	Teacher Education and Certification
Discipline	Education (EDUC)
Course Number	3217
Title	Analysis and Correction of Reading Difficulties
Abbreviated Course Title	Analy & Corr Reading Dif

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. 10/07/20 10:42 am
   Beth Kania-Gosche (bkaniagosche): Approved for REDUCATION Chair

2. 10/07/20 12:03 pm
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Secretary

3. 10/14/20 7:59 am
   Cecil Eng Huang
   Chua (cchua):
   Approved for
   Social Sciences
   DSCC Chair

4. 11/25/20 8:15 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for
   Pending CCC
   Agenda post

5. 12/16/20 1:42 pm
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Meeting Agenda

6. 12/16/20 2:31 pm
   Stephen Raper
   (sraper):
   Approved for
   Campus Curricula
   Committee Chair

History

1. Oct 31, 2016 by
   dewittp (1869.1)
2. Jan 18, 2019 by
   ershenb (1869.7)

This course reviews procedures ~~Procedures~~ for **identifying reading problems** ~~diagnosing~~ and **supporting learners at** ~~correcting reading problems within~~ the **elementary and early childhood levels.** ~~classroom.~~ **Students will be introduced to** ~~Acquaint preservice teachers preparing for elementary education with~~ commercially prepared informal diagnostic instruments, attitude and interest inventories, prescriptive measures, anecdotal records and strategies for corrective reading **instruction.** ~~instruction within the regular classroom.~~

Prerequisites
  Educ 3215.

Field Trip
Statement

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

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

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

Justification for
change:
  This course will be used for the early childhood program currently in development.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Key: 1869

Preview Bridge

Course Change Request

Date Submitted: 10/07/20 9:50 am

Viewing: **EDUC 3218 : Language Arts for Elementary and Early Childhood Teachers**

File: 1870.7

Last approved: 01/18/19 5:01 am

Last edit: 12/16/20 1:42 pm

Changes proposed by: bakm75

Programs
referencing this
course
PROPOSED: Education

Requested Effective Change Date	**Fall 2021** ~~01/07/2019~~
Department	Teacher Education and Certification
Discipline	Education (EDUC)
Course Number	3218
Title	Language Arts for Elementary **and Early Childhood** Teachers
Abbreviated Course Title	Lang Arts for ~~Elem~~ Tchrs
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. 10/07/20 10:41 am
   Beth Kania-Gosche (bkaniagosche): Approved for REDUCATION Chair

2. 10/07/20 12:05 pm
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Secretary
3. 10/14/20 7:59 am
   Cecil Eng Huang
   Chua (cchua):
   Approved for
   Social Sciences
   DSCC Chair
4. 11/25/20 8:33 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for
   Pending CCC
   Agenda post
5. 12/16/20 1:42 pm
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Meeting Agenda
6. 12/16/20 2:31 pm
   Stephen Raper
   (sraper):
   Approved for
   Campus Curricula
   Committee Chair

History

1. Oct 31, 2016 by
   dewittp (1870.1)
2. Jan 18, 2019 by
   ershenb (1870.5)

~~Procedures used in teaching integrated language arts in elementarygrades.~~**Students will apply research in emergent writing at** ~~The strategies would be~~ the **early childhood level** ~~development of written~~ and **the writing process at the** ~~oral communication for use in~~ elementary **level.** ~~grades.~~ **Providing effective feedback to learners on their oral and written communication will be addressed. Students will integrate art, music, drama, and play-based learning into language arts instruction.**

Prerequisites
  Educ 1040.

Field Trip
Statement

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

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

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

Justification for change:
  This course description more accurately describes the DESE competencies addressed in this course. This course will be used for the new early childhood program currently under development.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 1870

Key: 1870

Course Change Request

Date Submitted: 10/07/20 9:56 am

Viewing: **EDUC 3220 : Teaching Science in the Elementary and Early Childhood Classroom**

File: 4517.10

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

Last edit: 12/16/20 1:46 pm

Changes proposed by: bakm75

Programs referencing this course

PROPOSED: Education

Other Courses referencing this course

In The Prerequisites:

EDUC 3203 : Introduction to STEM Education

Requested Effective Change Date	Fall **2021** ~~2019~~
Department	Teacher Education and Certification
Discipline	Education (EDUC)
Course Number	3220
Title	Teaching Science in the Elementary **and Early Childhood** Classroom

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. 10/07/20 10:41 am
   Beth Kania-Gosche (bkaniagosche): Approved for REDUCATION Chair

Abbreviated Course Title	Teaching Science

Catalog Description

2. 10/07/20 12:06 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

3. 10/14/20 7:59 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

4. 11/25/20 8:33 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

5. 12/16/20 1:47 pm Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

6. 12/16/20 2:31 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

History

1. Jul 3, 2018 by Michelle Schwartze (schwartzem)

Students will learn to introduce children to scientific inquiry. Students will model higher order thinking skills and effective questioning techniques to guide learners' critical thinking by incorporating the engineering design process. ~~A study in methods and materials for teachingscience.~~**Students** ~~This course~~ will **identify uses** ~~cultivate students' understanding~~ of **technology** ~~Science, Technology, Engineering and Mathematics (STEM) education with a focus on implications~~ for teaching **science and develop informal** and **formal science assessments.** ~~learning.~~

Prerequisites
  Educ 1040.

Field Trip
Statement

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

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

Elective for   No
Majors

Justification for
change:
  This description more accurately represents the course content and DESE
  competencies. This course will be used for the new early childhood program.

Semesters
previously
offered as an
experimental
course
  Fall 2015
  Fall 2017

Fall 2015 enrollment- 10

Fall 2017 enrollment- 15

Co-Listed

Courses:

Course Reviewer

Comments

Key: 4517

Fall 2015 enrollment- 10

Fall 2017 enrollment- 15

Course Change Request

Date Submitted: 10/12/20 8:11 am

Viewing: **EDUC 3221 : Methods of Teaching Math** ~~in Elementary and Middle Schools~~

File: 2541.12

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

Last edit: 12/16/20 1:47 pm

Changes proposed by: bakm75

> Programs
> referencing this
> course
>   PROPOSED: Education

Requested Effective Change Date	Fall **2021** ~~2019~~
Department	Teacher Education and Certification
Discipline	Education (EDUC)
Course Number	3221
Title	

Methods of Teaching Math ~~in Elementary and Middle Schools~~

Abbreviated Course Title	**Mthd Tching Math** ~~Tch Math Elem & Mid Sch~~

> 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. 10/12/20 9:30 am
   Beth Kania-
   Gosche
   (bkaniagosche):
   Approved for
   REDUCATION
   Chair
2. 10/12/20 1:48 pm
   Marita Tibbetts

(tibbettsmg):
Approved for CCC
Secretary

3. 10/14/20 7:59 am
Cecil Eng Huang
Chua (cchua):
Approved for
Social Sciences
DSCC Chair

4. 11/25/20 8:34 am
Marita Tibbetts
(tibbettsmg):
Approved for
Pending CCC
Agenda post

5. 12/16/20 1:47 pm
Marita Tibbetts
(tibbettsmg):
Approved for CCC
Meeting Agenda

6. 12/16/20 2:31 pm
Stephen Raper
(sraper):
Approved for
Campus Curricula
Committee Chair

History

1. May 6, 2016 by
welchms (2541.1)
2. Dec 14, 2016 by
dewittp (2541.5)
3. Feb 4, 2019 by
carterke (2541.8)

The course presents an overview of how children learn mathematics, various techniques in teaching mathematics, and examples of applying these techniques to specific mathematical concepts (such as geometry, measurement, basic operations, statistics and probability, etc.).

Prerequisites
  Math 1120 or Math 1140; Educ 1040.

Field Trip
Statement

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

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

Elective for Majors	No

Justification for
change:
  This course will be used in the early childhood program under development.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:
  MATH 3921 - Teaching Math in Elementary and Middle Schools

Course Reviewer
Comments

Key: 2541

Course Change Request

Date Submitted: 10/07/20 8:28 am

Viewing: **EDUC 3280 : Instructional Strategies** ~~Teaching Methods and Skills~~ **in the Content Area** ~~Areas~~

File: 176.8

Last approved: 05/06/19 3:34 am

Last edit: 10/07/20 12:10 pm

Changes proposed by: bakm75

Catalog Pages
referencing this
course
  Teacher Education and Certification

Programs
referencing this
course
  PHYSIC-BS: Physics BS
  AP MATH-BS: Applied Mathematics BS

  BIO SC-BA: Biological Sciences BA
  BUS&MS-BS: Business and Mgmt Systems BS
  CHEM-BA: Chemistry BA
  HIST-BA: History BA
  PSYCH-BA: Psychology BA
  PSYCH-BS: Psychology BS
  ECON-BA: Economics BA

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. 10/07/20 10:40 am
   Beth Kania-Gosche (bkaniagosche): Approved for REDUCATION Chair

Requested Effective Change Date	Fall **2021** ~~2019~~
Department	Teacher Education and Certification
Discipline	Education (EDUC)
Course Number	3280

Title

Instructional Strategies ~~Teaching Methods and Skills~~ in **the** Content **Area** ~~Areas~~

Abbreviated Course Title	**Inst Strat in Content** ~~Tchg Mth Content Areas~~

Catalog Description

2. 10/07/20 12:11 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 10/14/20 7:59 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 11/25/20 8:35 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 12/16/20 1:47 pm Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda
6. 12/16/20 2:31 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

History

1. Feb 4, 2019 by carterke (176.1)
2. May 6, 2019 by carterke (176.6)

Students will design authentic, technology rich, data-driven instruction and assessment for diverse learners in middle and secondary schools. The student will demonstrate competency in planning and implementing differentiated instruction. Critical thinking and problem solving strategies will be emphasized. ~~Series of weekly experiences, demonstrations, observations, micro teaching, small group discussions to develop concepts of and skills in a variety of basic teaching tasks.Also, demonstration and lecture exercises in the preparation and use of audio visual materials.This course has a strong writing emphasis through multiple lessons plans and a unit plan.~~

Prerequisites

Educ **3216,** ~~3216 and~~ English **3170, Educ 3340** ~~3170.~~

Field Trip
Statement

Students will take a field trip to a high school or middle school.

Credit Hours	LEC: **3** ~~6~~	LAB: 0	IND: 0	RSD: 0
Total: **3** ~~6~~				

Required for Majors	Yes
Elective for Majors	No

Justification for change:

This course will now be 3 hours instead of 6. The prerequisite of EDUC 3340 Assessment for Student Learning is a new course requirement, so the credit hours remain the same for the education requirements.

This course used to be co-taught by one instructor for 4 credit hours and then content area adjunct instructors for 2 credit hours on a separate night. Multiple instructors caused issues for students, and scheduling rooms for different content areas was challenging. This is also no longer feasible with the current budget.

A 3 hour course is easier for scheduling purposes, and this will allow us to use course sharing with UMSL for low enrollment subjects like physics and chemistry. This will give students a better experience if they are able to engage with others in the same content.

Semesters
previously
offered as an
experimental
course

This course is a requirement for teacher certification and is offered every spring.

Co-Listed
Courses:

Course Reviewer
Comments

Key: 176

Course Change Request

Date Submitted: 10/07/20 11:01 am

Viewing: **EDUC 3430 : Diverse Literature for Children**

File: 4519.8

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

Last edit: 12/16/20 1:48 pm

Changes proposed by: bakm75

> Programs
> referencing this
> course
>
> PROPOSED: Education

Requested Effective Change Date	Fall **2021** ~~2019~~
Department	Teacher Education and Certification
Discipline	Education (EDUC)
Course Number	3430
Title	**Diverse** Literature for Children
Abbreviated Course Title	Literature for Children

> 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. 10/07/20 11:08 am
   Beth Kania-Gosche (bkaniagosche): Approved for REDUCATION Chair

2. 10/07/20 12:13 pm
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Secretary

3. 10/14/20 8:00 am
   Cecil Eng Huang
   Chua (cchua):
   Approved for
   Social Sciences
   DSCC Chair

4. 11/25/20 8:36 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for
   Pending CCC
   Agenda post

5. 12/16/20 1:48 pm
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Meeting Agenda

6. 12/16/20 2:31 pm
   Stephen Raper
   (sraper):
   Approved for
   Campus Curricula
   Committee Chair

History

1. Mar 26, 2018 by
   Michelle
   Schwartze
   (schwartzem)

In this course, students will critically examine ~~A study of~~ children's **fiction** ~~literary works, authors, genres,~~ and **nonfiction texts** ~~illustrators appropriate~~ for **use in early childhood and** ~~the~~ elementary **classrooms and libraries.** ~~classroom.~~ **The use of children's books in interdisciplinary instruction will be emphasized, including integration of STEM, art, drama, music, and movement.**

Prerequisites
  Educ 1040.

Field Trip
Statement

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

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

Elective for   No
Majors

Justification for
change:
  This course will be used in the new early childhood program, currently under
  development.

Semesters
previously
offered as an
experimental
course
  Spring 2016
  Spring 2018

  Spring 2016 enrollment -11
  Spring 2018 enrollment - 9

Co-Listed
Courses:

Course Reviewer
Comments

Key: 4519

Preview Bridge

Course Change Request

Date Submitted: 10/07/20 11:10 am

Viewing: **EDUC 3530 : Teaching Integrated Social Studies and Humanities** ~~for the Elementary Classroom~~

File: 4518.7

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

Last edit: 12/16/20 1:49 pm

Changes proposed by: bakm75

> Programs referencing this course
>
> PROPOSED: Education

Requested Effective Change Date	Fall **2021** ~~2019~~
Department	Teacher Education and Certification
Discipline	Education (EDUC)
Course Number	3530
Title	

Teaching Integrated Social Studies and Humanities ~~for the Elementary Classroom~~

Abbreviated Course Title	Teaching Social Studies

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. 10/07/20 11:11 am
   Beth Kania-Gosche (bkaniagosche): Approved for REDUCATION Chair

Catalog
Description

2. 10/07/20 12:14
   pm
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Secretary
3. 10/14/20 8:00 am
   Cecil Eng Huang
   Chua (cchua):
   Approved for
   Social Sciences
   DSCC Chair
4. 11/25/20 8:37 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for
   Pending CCC
   Agenda post
5. 12/16/20 1:49 pm
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Meeting Agenda
6. 12/16/20 2:31 pm
   Stephen Raper
   (sraper):
   Approved for
   Campus Curricula
   Committee Chair

History

1. Mar 26, 2018 by
   Michelle
   Schwartze
   (schwartzem)

2. Feb 4, 2019 by
carterke (4518.3)

The course will focus on the methodology and materials needed to facilitate **children's** ~~elementary students'~~ development in social **studies, particularly citizenship and Missouri history/geography.** ~~studies.~~ This course will integrate the curriculum and teaching strategies in social studies with music, physical education, and art.

Prerequisites
  Educ 1040.

Field Trip
Statement

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

Total: 3

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

Elective for
Majors   No

Justification for
change:
  This course will be used for the new early childhood program currently under
  development.

Semesters
previously
offered as an
experimental
course
  Spring 2016
  Spring 2018

  Spring 2016 enrollment- 11
  Spring 2018 enrollment- 12

Co-Listed
Courses:

Course Reviewer
Comments

Key: 4518

Preview Bridge

Course Change Request

Date Submitted: 10/07/20 11:09 am

Viewing: **EDUC 4299 : Student Teaching**

File: 1189.7

Last approved: 05/06/19 3:34 am

Last edit: 10/07/20 11:09 am

Changes proposed by: bakm75

Catalog Pages
referencing this
course

[Teacher Education and Certification](#)

Programs
referencing this
course

[PHYSIC-BS: Physics BS](#)

[AP MATH-BS: Applied Mathematics BS](#)

[BIO SC-BA: Biological Sciences BA](#)

[BUS&MS-BS: Business and Mgmt Systems BS](#)

[CHEM-BA: Chemistry BA](#)

[HIST-BA: History BA](#)

[PSYCH-BA: Psychology BA](#)

[PSYCH-BS: Psychology BS](#)

[PROPOSED: Education](#)

[ECON-BA: Economics BA](#)

Requested
Effective Change
Date

Fall **2021** ~~2019~~

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. 10/07/20 11:11 am
   Beth Kania-Gosche (bkaniagosche): Approved for REDUCATION Chair

Department	Teacher Education and Certification
Discipline	Education (EDUC)
Course Number	4299

Title

  Student Teaching

Abbreviated Course Title	Student Teaching

Catalog
Description

2. 10/07/20 12:15 pm
   Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 10/14/20 8:00 am
   Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 11/25/20 8:38 am
   Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 12/16/20 1:49 pm
   Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda
6. 12/16/20 2:31 pm
   Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

History

1. Jan 18, 2019 by ershenb (1189.1)
2. May 6, 2019 by carterke (1189.3)

This course is the culminating experience to qualify students for Missouri initial teacher certification. Students ~~Student teaching~~ **will be** **placed** ~~supervised participation,~~ in **a school** ~~the content area of certification~~ with **a credentialed mentor teacher in the intended area of certification.** ~~a Missouri Certified Cooperating Teacher.~~ **Students will be observed and evaluated by university faculty and the mentor teacher.** ~~Student teaching is based on 16 weeks and requires the student teacher to demonstrate an ability to be an effective decision making teacher and an inquiry learner.~~

Prerequisites

Professional standing and **student teaching application approved** ~~arrangements made~~ previous **semester** ~~semester.~~

Field Trip
Statement

Credit Hours	LEC: 0	LAB: 12	IND: 0	RSD: 0
Total: 12				

Required for Majors	Yes
Elective for Majors	No

Justification for change:

This description more accurately represents the course requirements.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer

Comments

Key: 1189

Course Change Request

New Course Proposal

Date Submitted: 10/30/20 8:16 am

Viewing: **ELEC ENG 5355 : Process Control System Safety, Security and Alarms**

File: 4754

Last edit: 11/11/20 8:18 am

Changes proposed by: kte

> Programs referencing this course
>
> AUTOEN-CTU: Undergraduate Certificate in Automation Engineering
> AUTOENG-CT: Automation Eng & PLC CT

Requested Effective Change Date	Fall 2021
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	5355
Title	

Process Control System Safety, Security and Alarms

Abbreviated Course Title	Proc Cont Safe Secur Alm

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. 11/11/20 12:53 am
   Watkins (watkins):
   Approved for RELECENG Chair
2. 11/11/20 8:19 am
   Marita Tibbetts (tibbettsmg):

Catalog
Description

Approved for CCC
Secretary

3. 11/20/20 12:31
pm
Stephen Raper
(sraper):
Approved for
Engineering DSCC
Chair

4. 11/25/20 8:38 am
Marita Tibbetts
(tibbettsmg):
Approved for
Pending CCC
Agenda post

5. 12/16/20 11:19
am
Marita Tibbetts
(tibbettsmg):
Approved for CCC
Meeting Agenda

6. 12/16/20 12:36
pm
Stephen Raper
(sraper):
Approved for
Campus Curricula
Committee Chair

Lifecycle approach for industrial automation in the context of IEC 61511 (safety) and
IEC 62443 (IACS cybersecurity) standards. Functional safety and cybersecurity
fundamentals for risk analysis, safety/ cybersecurity requirements, inherently
safer/secure design techniques, SIL/SL verification, operations, real-world
cybersecurity attacks, alarm management.

Prerequisites
Elec Eng 3320, Elec Eng 3340, or Chem Eng 4110

Field Trip
Statement
  No field trips

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

Required for Majors	No

Elective for Majors	Yes

Justification for
new course:
  Subject matter that is important to those in the field of process control and factory
  automation.

  Co-list as Chem Eng 5355

Semesters
previously
offered as an
experimental
course
  Fall 2019 (15 students)
  Fall 2020 (17 students)

Co-Listed
Courses:
  chem eng 5355 - Course Not Found

Course Reviewer
Comments
  tibbettsmg (11/11/20 8:18 am): enrollment verified. MT

Key: 4754

Preview Bridge

Course Change Request

Date Submitted: 11/13/20 11:14 am

Viewing: **ELEC ENG 5500 : Electric Drive Systems**

File: 842.1

Last edit: 12/16/20 1:49 pm

Changes proposed by: mlr6xd

Programs
referencing this
course

ELMC&DR-CT: Electric Machine & Drives CT

Other Courses
referencing this
course

In The Prerequisites:

ELEC ENG 6510 : Advanced Electric Drive Vehicles

Requested Effective Change Date	**Summer 2021** ~~08/14/2018~~
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	5500
Title	Electric Drive Systems
Abbreviated Course Title	Electric Drive Systems

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. 11/13/20 11:42 am Watkins (watkins): Approved for RELECENG Chair
2. 11/16/20 10:13 am Marita Tibbetts (tibbettsmg):

Catalog
Description

Approved for CCC
Secretary

3. 11/20/20 12:31
pm
Stephen Raper
(sraper):
Approved for
Engineering DSCC
Chair

4. 11/25/20 8:39 am
Marita Tibbetts
(tibbettsmg):
Approved for
Pending CCC
Agenda post

5. 12/16/20 1:50 pm
Marita Tibbetts
(tibbettsmg):
Approved for CCC
Meeting Agenda

6. 12/16/20 2:31 pm
Stephen Raper
(sraper):
Approved for
Campus Curricula
Committee Chair

Course content is roughly 1/3 power electronics, 1/3 applied control and 1/3 electric
machinery and focuses on analysis, simulation, and control design of electric drive
based speed, torque, and position control systems.

Prerequisites
Elec Eng ~~3500 and Elec Eng~~ 3320.

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:

3500 was never needed for the topics covered in 5500. Originally it was added because 5500 is on motor drives and needs some basic understanding of dc machines. However, that introduction to dc machines is already integrated to EE5500 and so if the student is not familiar with those topics, the first chapter of the course will cover those. So 3500 is not needed. However, 3320 is still needed and should be a prerequisite.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 842

Course Change Request

Date Submitted: 10/01/20 8:16 am

Viewing: **ELEC ENG 5570 : Extra High Voltage Engineering**

File: 306.1

Last edit: 12/16/20 1:50 pm

Changes proposed by: mlr6xd

Programs
referencing this
course
  ELPWRSY-CT: Electrical Power Sys Eng CT

Requested Effective Change Date	**Fall 2021** ~~08/14/2018~~
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	5570
Title	Extra High Voltage Engineering
Abbreviated Course Title	Extra High Voltage Engineering

Catalog
Description

Approval Path

1. 10/09/20 11:53 am
   Watkins (watkins):
   Approved for RELECENG Chair
2. 10/09/20 12:04 pm
   Marita Tibbetts (tibbettsmg):

Approved for CCC Secretary

3. 10/23/20 4:33 pm Stephen Raper (sraper): Approved for Engineering DSCC Chair

4. 11/25/20 8:39 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

5. 12/16/20 1:50 pm Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

6. 12/16/20 2:31 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

The physical phenomena associated with high voltage dielectric breakdown are presented. Methods of generating and measuring high voltages and currents are explained. Demonstration of design and performance. Field trips to companies for laboratory testing of high voltage according to industry standards will serve as the lab part of the course.

Prerequisites
Senior standing.

Field Trip
Statement

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

Required for Majors   No

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

Justification for change:

The "Lab" credit is combined with the lecture course, so there is always confusion for students when enrolling. Since all elements of the course are taught during the regular lecture time, it makes more sense for this to transition to a 3 credit hour lecture course instead of 2 lectures hours and 1 lab.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 306

Course Change Request

Date Submitted: 11/11/20 1:00 pm

Viewing: **ELEC ENG 6500 : AC Drives: Dynamic and Control** ~~Advanced Theory Of Electric Machines~~

File: 2211.1

Last edit: 11/12/20 7:56 am

Changes proposed by: mlr6xd

Programs referencing this course

[ELMC&DR-CT: Electric Machine & Drives CT](#)

Requested Effective Change Date	**Fall 2021** ~~08/01/2014~~
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	6500
Title	**AC Drives: Dynamic and Control** ~~Advanced Theory Of Electric Machines~~
Abbreviated Course Title	**AC Drives: Dyn & Con** ~~Adv Theory Of Elec Mach~~

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. 11/11/20 1:07 pm Watkins (watkins): Approved for RELECENG Chair
2. 11/12/20 7:56 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

3. 11/20/20 12:31 pm
Stephen Raper (sraper): Approved for Engineering DSCC Chair

4. 11/25/20 8:40 am
Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

5. 12/16/20 11:19 am
Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

6. 12/16/20 12:36 pm
Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

Review of induction and synchronous machines and their modeling. Introduction to ~~Energy conversion,~~ reference frame theory, ~~transient and~~ dynamic **behavior** ~~modeling~~ of ac machines, **drive** ~~simulation~~ of ac machines, **ac drives controller design, and other** ~~parameter identification, model-order reduction, advanced~~ topics **relevant to drives and specialty machines.** ~~depending on semester taught.~~

Prerequisites
Elec Eng **3500 and Elec Eng 5500.** ~~3500.~~

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:
   Reducing the content on the motors and adding more contents on drives.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 2211

Preview Bridge

Course Change Request

Date Submitted: 11/11/20 8:57 am

Viewing: **FRENCH 4330 : Professional** ~~Business~~ **French**

File: 4308.9

Last approved: 06/27/16 3:11 am

Last edit: 11/11/20 8:57 am

Changes proposed by: karmannc

Requested Effective Change Date	**Summer 2021** ~~08/14/2018~~
Department	Arts, Languages, & Philosophy
Discipline	French (FRENCH)
Course Number	4330
Title	**Professional** ~~Business~~ French
Abbreviated Course Title	**Professional** ~~Business~~ French
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. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

Approval Path

1. 11/10/20 4:29 pm Audra Merfeld-Langston (audram): Rollback to Initiator
2. 11/11/20 11:40 am Audra Merfeld-

Langston (audram): Approved for RPHILOSO Chair

3. 11/11/20 11:49 am
Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

4. 11/11/20 12:06 pm
Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair

5. 11/25/20 8:40 am
Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

6. 12/16/20 11:20 am
Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

7. 12/16/20 12:37 pm
Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

Through practical examples and exercises, this course helps you develop linguistic proficiency, intercultural competence, and knowledge of the French-language professional world. Focus on applications in a variety of professional milieux, depending on students' specializations and areas of interest. ~~This course addresses practical reading, speaking, listening, and writing strategies for conducting business in French-speakingcountries.Students will also improve their knowledge of the contemporary Francophoneworld.~~Readings, lectures, and discussions ~~are~~ in French.

Prerequisites

Any French course at the 2000 level or above ~~French 2170.~~

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:

This is not a new course. It is an existing course (Business French) updated to bet-ter serve our students' needs, specifically in our global engineering program.

Semesters previously offered as an experimental course

FS 2008, SP 2015

Co-Listed
Courses:

Course Reviewer
Comments

audram (11/10/20 4:29 pm): Rollback: Sending back per your request. Also, please remove hyphens in "linguis-tic" and "mi-lieux."

Key: 4308

Preview Bridge

FS 2008, SP 2015

Course Change Request

Date Submitted: 11/05/20 12:52 pm

Viewing: **HISTORY 4097 : Senior Project**

File: 2491.4

Last approved: 06/27/16 3:12 am

Last edit: 12/16/20 1:50 pm

Changes proposed by: bruening

> Programs referencing this course
>
> HIST-BA: History BA

Requested Effective Change Date	**Fall 2021** ~~08/14/2018~~
Department	History and Political Science
Discipline	History (HISTORY)
Course Number	4097
Title	Senior Project
Abbreviated Course Title	Senior Project

Catalog 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. CAT entry
11. Peoplesoft

Approval Path

1. 11/05/20 12:52 pm
   Michael Bruening (bruening): Approved for RHISTORY Chair
2. 11/05/20 2:00 pm
   Marita Tibbetts (tibbettsmg):

Approved for CCC Secretary
3. 11/05/20 3:03 pm Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
4. 11/25/20 8:41 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 12/16/20 1:51 pm Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda
6. 12/16/20 2:31 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

History

1. Oct 19, 2015 by dewittp (2491.1)
2. Jun 27, 2016 by dewittp (2491.2)

History majors interested in graduate school or professional school, such as law school, should complete an extended research project, or thesis, under the supervision of a department faculty member.

Prerequisites

    History **2791** ~~2790~~ and senior standing.

Field Trip
Statement

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

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

Justification for
change:

    Change in prerequisite. The old prereq Hist 2790 no longer exists.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Key: 2491

Course Change Request

Date Submitted: 10/28/20 9:59 am

Viewing: **IS&T 4641 : Digital Commerce and IoT Analytics** ~~the Internet of Things~~

File: 925.11

Last approved: 07/09/18 8:47 am

Last edit: 10/28/20 9:59 am

Changes proposed by: cecq8z

Programs
referencing this
course

   BUS&MS-BS: Business and Mgmt Systems BS
   ANA&DTA-MI: Business Analytics and Data Science Minor
   CYBERMG-MI: Cybersecurity Management and Information
   Assurance Minor
   E&S COM-MI: Elect & Social Commerce Minor
   ENTPRNS-MI: Entrepreneurship Minor
   IST-BS: Information Science and Tch BS

Requested Effective Change Date	**Fall 2021** ~~01/09/2018~~
Department	Business and Information Technology
Discipline	Info Science & Technology (IS&T)
Course Number	4641
Title	

   Digital Commerce and **IoT Analytics** ~~the Internet of Things~~

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

Approval Path

1. 08/29/20 11:22 am
   siauk: Approved for RINFSCTE Chair
2. 08/31/20 11:34 am
   Marita Tibbetts (tibbettsmg):

Abbreviated Course Title	Digital Commerce & IoT

Catalog Description

Digital Commerce & IoT

    Approved for CCC Secretary

3. 08/31/20 11:36 am
Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

4. 09/16/20 8:27 am
Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

5. 10/07/20 10:01 am
Marita Tibbetts (tibbettsmg): Rollback to Initiator

6. 10/20/20 5:05 pm
siauk: Approved for RINFSCTE Chair

7. 10/28/20 9:01 am
Marita Tibbetts (tibbettsmg): Rollback to Initiator

8. 10/28/20 4:05 pm
siauk: Approved for RINFSCTE Chair

9. 10/29/20 8:26 am
Marita Tibbetts

(tibbettsmg):
Approved for CCC
Secretary

10. 10/29/20 8:51 am
Cecil Eng Huang
Chua (cchua):
Approved for
Social Sciences
DSCC Chair

11. 11/25/20 8:42 am
Marita Tibbetts
(tibbettsmg):
Approved for
Pending CCC
Agenda post

12. 12/16/20 11:20
am
Marita Tibbetts
(tibbettsmg):
Approved for CCC
Meeting Agenda

13. 12/16/20 12:37
pm
Stephen Raper
(sraper):
Approved for
Campus Curricula
Committee Chair

History

1. May 2, 2014 by
barryf (925.1)
2. Jun 30, 2014 by
lahne (925.4)

3. Jul 9, 2018 by
barryf (925.5)

Introduction to methods and concepts of data analytics that provides digital marketers and managers the foundation needed to make decisions or detect patterns based on data from eCommerce websites or from Internet of Things (IoT) devices. Key metrics, process, and challenges will be covered. ~~Introduction to fundamental concepts of management and application to IT and support of commerce.Examines the use of IT in business processes and everyday interactions such as IoT.Explores management issues of integrating IT into processes to run businesses better.~~

Prerequisites
  IS&T 1750 and at least Sophomore standing.

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:
  Part of a departmental exercise to clean up the course catalog to reduce enrollment confusion..

Semesters
previously
offered as an
experimental
course

Co-Listed

Courses:

Course Reviewer

Comments

tibbettsmg (10/07/20 10:01 am): Rollback: Resubmit with IST DC.

tibbettsmg (10/21/20 6:18 am): deadline passed for Sp21. updated effective date to FS21. MT

tibbettsmg (10/28/20 9:01 am): Rollback: rollback at dept request. MT

Key: 925

Preview Bridge

Course Change Request

Date Submitted: 10/28/20 8:40 am

Viewing: **IS&T 5251 :** ~~Technological Innovation~~ **Management and Leadership of Technological Innovation**

File: 2412.1

Last edit: 12/16/20 1:51 pm

Changes proposed by: cecq8z

Programs referencing this course

SCTCPL-MI: Science, Tech,& Politics Minor

BUS&MS-BS: Business and Mgmt Systems BS

MGTLEAD-CT: Management and Leadership

E&S COM-CT: Elec & Social Commerce CT

MOBLB&T-CT: Mobile Business and Digital Transformation CT

BIOINV-CTU : BioInnovation CTU

E&S COM-MI: Elect & Social Commerce Minor

ENTPRNS-MI: Entrepreneurship Minor

Requested Effective Change Date	**Fall 2021** ~~08/14/2018~~
Department	Business and Information Technology
Discipline	Info Science & Technology (IS&T)
Course Number	5251
Title	

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

Approval Path

1. 08/29/20 11:23 am
   siauk: Approved for RINFSCTE Chair
2. 08/31/20 11:35 am
   Marita Tibbetts (tibbettsmg):

~~Technological Innovation~~ Management and Leadership **of Technological Innovation**

Abbreviated Course Title	Tech Innovation Mgt

Catalog Description

~~Technological Innovation~~ Management and Leadership **of Technological Innovation**

Approved for CCC Secretary

3. 08/31/20 11:36 am
   Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

4. 09/16/20 8:30 am
   Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

5. 10/07/20 10:03 am
   Marita Tibbetts (tibbettsmg): Rollback to Initiator

6. 10/28/20 4:05 pm
   siauk: Approved for RINFSCTE Chair

7. 10/29/20 8:29 am
   Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

8. 10/29/20 8:51 am
   Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

9. 11/25/20 8:42 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

10. 12/16/20 1:51 pm Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

11. 12/16/20 2:31 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

The course **covers strategic** ~~focuses on the knowledge and skills necessary for the development and implementation of effective strategies for the~~ management of **technological innovation and leadership in managing** technology-based organizations. ~~Thisinvolves:~~**It focuses on** developing a general management perspective **on technology,** ~~on technology and~~ innovation, **industry dynamics** ~~examining the problems~~ of ~~new product development, identifying distinctive~~ technological **innovation, and new product development.** ~~competencies, licensing and marketing technologies, assessing the organizational and industrial context of technology.~~

Prerequisites
  Senior or 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:
  Renumbering to provide 9 hrs of 6000 level courses required for MS IST students.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments
  tibbettsmg (10/07/20 10:03 am): Rollback: rollback from CCC meeting.
  tibbettsmg (10/29/20 8:28 am): missed Sp21 deadline. Eff. term changed to FS 21. MT

Key: 2412

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 11/16/20 10:14 am

Viewing: **IS&T 6251 : Technological Innovation, Entrepreneurship, and Economic Development**

File: 4764

Last edit: 11/16/20 10:14 am

Changes proposed by: cecq8z

Programs
referencing this
course
ENT&TEC-CT: Entrepreneur & Tech Innovat CT

Requested Effective Change Date	Fall 2021
Department	Business and Information Technology
Discipline	Info Science & Technology (IS&T)
Course Number	6251
Title	

Technological Innovation, Entrepreneurship, and Economic Development

Abbreviated Course Title	Tech Innov, Entr, Econ D

Catalog
Description

In Workflow

1. **RBUSADMN 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. 11/16/20 10:29 am
   siauk: Approved for RBUSADMN Chair
2. 11/16/20 2:21 pm
   Marita Tibbetts (tibbettsmg):

Approved for CCC Secretary

3. 11/16/20 2:34 pm
Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

4. 11/25/20 8:43 am
Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

5. 12/16/20 11:20 am
Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

6. 12/16/20 12:37 pm
Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

Technological innovation is an important driver of entrepreneurship and economic development. The course covers essential practices, methods, and tools for successful innovation and entrepreneurship to enhance economic development.

Prerequisites
None

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 new course:

The segment of 5251 focused on innovation and entrepreneurship is going to be extracted and expanded upon to be a full advanced course in line with a 6000 level of difficulty. The management and leadership elements of 5251 will remain in that course.

Semesters previously offered as an experimental course

None. DC change in Masters degree alongside this change.

Co-Listed Courses:

Course Reviewer Comments

Key: 4764

Course Change Request

New Course Proposal

Date Submitted: 11/06/20 3:26 pm

Viewing: **MATH 1210 : Calculus I-A**

File: 4760

Last edit: 11/10/20 6:13 am

Changes proposed by: prunnion

Requested Effective Change Date	Fall 2021
Department	Mathematics & Statistics
Discipline	Mathematics (MATH)
Course Number	1210
Title	
Calculus I-A	
Abbreviated Course Title	Calculus I-A

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. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

Approval Path

1. 11/06/20 4:24 pm vsam: Approved for RMATHEMA Chair
2. 11/10/20 6:13 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

3. 11/17/20 12:56 pm
   Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 11/25/20 8:44 am
   Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 12/16/20 11:20 am
   Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda
6. 12/16/20 12:37 pm
   Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

An introduction to differential and integral calculus for students needing extra algebra or trigonometry content. Emphasizes differential calculus along with linear, polynomial, rational, and radical functions and equations. Math 1210 and 1211 combined cover the same calculus content as Math 1214. Credit will be given for only one of Math 1210 or Math 1214.

Prerequisites

A grade of "C" or better in either Math 1120 or Math 1140, or by placement exam.

Field Trip
Statement

Credit Hours	LEC: 3	LAB: 1	IND: 0	RSD: 0
Total: 4				

Required for Majors	Yes

Elective for Majors	No

Justification for
new course:

As part of the ongoing calculus redesign, we are restructuring our offerings for
students who are "not quite ready" for the existing Calculus I. The proposed Calculus
I-A (Math 1210, this proposal) and Calculus I-B (Math 1211, see the separate CC
form) are designed to, as a two-semester sequence, cover all of the existing Math
1214 course content plus a significant portion of the existing content in college
algebra (Math 1120 or 1140) and trigonometry (Math 1160). This will not, however,
be a simple repackaging of existing content. Algebra, trigonometry, and calculus
content will be interwoven in a thoughtful and pedagogically sound manner so that
the interplay of the material can be explored and students are likely to emerge with
a stronger understanding of all three content areas than they do when taking the
existing 1140, 1160, and 1214 courses consecutively. Furthermore, since many of the
current students in 1140 and 1160 have taken courses called "calculus" in high
school, we anticipate student satisfaction with these courses to be MUCH higher
than the existing courses since they will be in a college course called "calculus"
sooner. If students are more satisfied walking in to the course on day 1, they are
more likely to be motivated and should thus be more likely to succeed.

With this in mind, it may seem somewhat strange to list Math 1120 or Math 1140 as
prerequisite for Math 1210, but this is completely intentional and proper. Students
who would currently take Math 1120 (possibly preceded by Math 1103) will still take
Math 1120, which covers more of the fundamental, earlier content than will be
included in Math 1210 and 1211 (and we are likely to add even more of this
foundational content to 1120 going forward). Currently, these students would take

Math 1120 one semester, Math 1160 the next, and then Math 1214 in the third semester. Now, rather than taking Math 1160 by itself, most of these students will move from Math 1120 to Math 1210 to Math 1211.

Now that we've explained why Math 1120 is an appropriate prerequisite, let's consider Math 1140. Many transfer courses come in as Math 1140 rather than 1120 (often largely due to credit hour considerations), and students who transfer in Math 1140 credit and still need trigonometry will be better off taking Math 1210 and 1211 instead of 1160 and 1214 since they should emerge from 1210 and 1211 with stronger foundations in algebra, trigonometry, and Calculus I due to the structure of the courses. Thus, we want an explicit prerequisite pathway to exist for these students.

We anticipate most degree programs currently requiring Math 1214 (Calculus I) will list their requirement as "Math 1214; or Math 1210 and 1211." This will be the requirement of the BS in Applied Mathematics degree, for which a DC form is also being submitted in this review cycle.

This is a big change that we expect to positively impact a significant proportion of our incoming freshmen, and we look forward to offering Math 1210 in Fall 2021.

Semesters previously offered as an experimental course
    None

Co-Listed Courses:

Course Reviewer Comments

Key: 4760

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 11/06/20 3:34 pm

Viewing: **MATH 1211 : Calculus I-B**

File: 4761

Last edit: 11/06/20 3:34 pm

Changes proposed by: prunnion

Requested Effective Change Date	Fall 2021
Department	Mathematics & Statistics
Discipline	Mathematics (MATH)
Course Number	1211
Title	
Calculus I-B	
Abbreviated Course Title	Calculus I-B

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. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

Approval Path

1. 11/06/20 4:25 pm vsam: Approved for RMATHEMA Chair
2. 11/10/20 6:14 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

3. 11/17/20 12:57 pm
Katie Shannon (shannonk):
Approved for Sciences DSCC Chair

4. 11/25/20 8:44 am
Marita Tibbetts (tibbettsmg):
Approved for Pending CCC Agenda post

5. 12/16/20 11:20 am
Marita Tibbetts (tibbettsmg):
Approved for CCC Meeting Agenda

6. 12/16/20 12:37 pm
Stephen Raper (sraper):
Approved for Campus Curricula Committee Chair

A continuation of Math 1210. Emphasizes differential and integral calculus along with exponential, logarithmic, trigonometric, and inverse functions and equations, plus trigonometric identities and solutions of general triangles. Math 1210 and 1211 combined cover the same calculus content as Math 1214.

Prerequisites
A grade of "C" or better in either Math 1210 or 1214, or by placement exam.

Field Trip
Statement

Credit Hours Total: 4	LEC: 3	LAB: 1	IND: 0	RSD: 0
Required for Majors	Yes			
Elective for Majors	No			

Justification for

new course:

As part of the ongoing calculus redesign, we are restructuring our offerings for students who are "not quite ready" for the existing Calculus I. The proposed Calculus I-A (Math 1210, see the separate CC form) and Calculus I-B (Math 1211, this form) are designed to, as a two-semester sequence, cover all of the existing Math 1214 course content plus a significant portion of the existing content in college algebra (Math 1120 or 1140) and trigonometry (Math 1160). This will not, however, be a simple repackaging of existing content. Algebra, trigonometry, and calculus content will be interwoven in a thoughtful and pedagogically sound manner so that the interplay of the material can be explored and students are likely to emerge with a stronger understanding of all three content areas than they do when taking the existing 1140, 1160, and 1214 courses consecutively. Furthermore, since many of the current students in 1140 and 1160 have taken courses called "calculus" in high school, we anticipate student satisfaction with these courses to be MUCH higher than the existing courses since they will be in a college course called "calculus" sooner. If students are more satisfied walking in to the course on day 1, they are more likely to be motivated and should thus be more likely to succeed.

For the prerequisite, listing Math 1210 seems perfectly normal and completely expected, but Math 1214 seems entirely out of place here. Fortunately, things aren't always as they seem. Many students arrive at S&T with credit for Calculus I (Math 1214) yet their trigonometry placement results demonstrate that they do not have the trig background to be successful in Calculus II. Thus, we currently have a nontrivial group of students who arrive at S&T with Calculus I credit, spend their first semester taking trigonometry (Math 1160), and then move directly into Math 1215 (Calculus II) in the second semester. Since the majority of the trigonometry content

(except for extraordinarily basic trigonometry content) will be contained in 1211 rather than 1210, these students can take 1211 instead of 1160 and reinforce both their calculus and trigonometry knowledge. This should be a strongly preferable path for these students, and they will still end up in Calculus II their second semester on campus. (It is for these reasons that we did not add a clause regarding the ability to earn credit for both 1214 and 1211 - students may arrive with 1214 credit and have very good reason to take 1211.)

We anticipate most degree programs currently requiring Math 1214 (Calculus I) will list their requirement as "Math 1214; or Math 1210 and 1211." This will be the requirement of the BS in Applied Mathematics degree, for which a DC form is also being submitted in this review cycle.

This is a big change that we expect to positively impact a significant proportion of our incoming freshmen, and we look forward to offering these courses in upcoming academic year.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer Comments

Key: 4761

Preview Bridge

Course Change Request

Date Submitted: 11/04/20 5:36 pm

Viewing: **MATH 1212 : Survey of ~~Business~~ Calculus**

File: 2178.3

Last approved: 04/25/14 3:06 pm

Last edit: 12/16/20 1:51 pm

Changes proposed by: prunnion

Programs
referencing this
course

PRE MBA-MI: Pre MBA Minor

PRE-MED-MI: Pre-Medicine Minor

BIO SC-BS: Biological Sciences BS

BUS&MS-BS: Business and Mgmt Systems BS

ECON-BS: Economics BS

IST-BS: Information Science and Tch BS

Other Courses
referencing this
course

In The Prerequisites:

CIV ENG 2601 : Fundamentals Of Environmental Engineering And Science

ENV ENG 2601 : Fundamentals Of Environmental Engineering and Science

STAT 3425 : Introduction to Biostatistics

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. CAT entry
11. Peoplesoft

Approval Path

1. 11/05/20 2:01 pm vsam: Approved for RMATHEMA Chair
2. 11/10/20 6:16 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

Requested Effective Change Date	**Fall 2021** ~~08/01/2014~~
Department	Mathematics & Statistics
Discipline	Mathematics (MATH)
Course Number	1212
Title	**Survey of** ~~Business~~ Calculus
Abbreviated Course Title	**Survey of** ~~Business~~ Calculus

Catalog Description

~~Calculus forBus.&Mgt.Sys, Econ & Finance, orInfo.Sci.& Tech; also possiblyBio.Sci,Soc.Sci.orHumanities.~~**A survey of derivatives,** ~~Derivatives,~~ optimization, exponential and logarithmic functions, integration, multivariate functions, partial **derivatives, and** ~~derivatives,~~ Lagrange **multipliers with applications in business, economics, and biology.** ~~multipliers, applications.~~ **This course is not appropriate for engineering or physical science majors.** May not be used as a prerequisite for either Math 1215 or Math 1221.

3. 11/17/20 1:03 pm Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 11/25/20 8:45 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 12/16/20 1:51 pm Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda
6. 12/16/20 2:31 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

History

1. Apr 25, 2014 by lahne (2178.1)

Prerequisites

A grade of "C" or better in either ~~1120 or~~ Math **1120, Math 1140, or Math 1210;** ~~1140;~~ or by placement exam.

Field Trip
Statement

Credit Hours Total: 4	LEC: 3	LAB: 1	IND: 0	RSD: 0
Required for Majors	No			
Elective for Majors	**Yes** ~~No~~			

Justification for
change:

This course is frequently (and appropriately) taken by biology majors and economics majors in addition to business majors, so calling the course "Business Calculus" no longer seems appropriate. "Survey of Calculus" is a very common title for this sort of course. We are not intending to change the content of the course - it has long included examples from the life sciences (and the title of the textbook which has been in use for years references business, economics, and the life sciences), and have simply updated the course description to reflect the reality of what is being taught.

On the prerequisite, we are now including the new Math 1210 (Calculus I-A) course, for which a separate CC form is being submitted. Math 1210 will contain enough algebra content to easily meet the prerequisite for this course, and a student who comes to campus intending on majoring in engineering and later decides to change to biology, economics, or business may prefer taking Math 1212 instead of Math 1211 (Calculus I-B, a separate CC form is also being submitted) to fulfill their calculus requirement. While we do not anticipate a large number of students using Math 1210 to fulfill the prerequisite for Math 1212, we want to make sure it is an explicit option available to the students.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 2178

Preview Bridge

Course Change Request

Date Submitted: 11/06/20 3:40 pm

Viewing: **MATH 1214 : Calculus ~~For Engineers~~ I**

File: 116.5

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

Last edit: 11/06/20 3:40 pm

Changes proposed by: prunnion

Programs
referencing this
course

NU ENG-BS: Nuclear Engineering BS

PE ENG-BS: Petroleum Engineering BS

PHYSIC-BS: Physics BS

PRE MBA-MI: Pre MBA Minor

PRE-MED-MI: Pre-Medicine Minor

AE ENG-BS: Aerospace Engineering BS

ARC ENG-BS: Architectural Engineering BS

BIO SC-BS: Biological Sciences BS

CR ENG-BS: Ceramic Engineering BS

CH ENG-BS: Chemical Engineering BS

CHEM-BA: Chemistry BA

CV ENG-BS: Civil Engineering BS

CP ENG-BS: Computer Engineering BS

EL ENG-BS: Electrical Engineering BS

GE ENG-BS: Geological Engineering BS

CHEM-BS: Chemistry BS

FR ENG-UN: Foundational Engineering and Computing

CMP SC-BS: Computer Science BS

ENG MG-BS: Engineering Management BS

EV ENG-BS: Environmental Engineering BS

GL&GPH-BS: Geology and Geophysics BS

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. CAT entry
11. Peoplesoft

Approval Path

1. 11/06/20 4:25 pm vsam: Approved for RMATHEMA Chair
2. 11/10/20 6:17 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

MC ENG-BS: Mechanical Engineering BS

MT ENG-BS: Metallurgical Engineering BS

MI ENG-BS: Mining Engineering BS

Other Courses
referencing this
course

In The Prerequisites:

AERO ENG 3131 : Aerodynamics I

AERO ENG 3251 : Aerospace Structures I

AERO ENG 3613 : Aerospace Mechanics I

CIV ENG 2601 : Fundamentals Of Environmental Engineering
And Science

ENG MGT 1210 : Economic Analysis of Engineering Projects

ENV ENG 2601 : Fundamentals Of Environmental Engineering
and Science

MECH ENG 2519 : Thermodynamics

MECH ENG 2761 : Introduction To Design

MECH ENG 3313 : Machine Dynamics

MECH ENG 3411 : Modeling and Analysis of Dynamic Systems

NUC ENG 2406 : Reactor Operations I

Requested Effective Change Date	**Fall 2021** ~~08/17/2015~~
Department	Mathematics & Statistics
Discipline	Mathematics (MATH)
Course Number	1214
Title	Calculus ~~For Engineers~~ I
Abbreviated Course Title	**Calculus I** ~~Calc For Engrs I~~

3. 11/17/20 1:04 pm
Katie Shannon
(shannonk):
Approved for
Sciences DSCC
Chair

4. 11/25/20 8:46 am
Marita Tibbetts
(tibbettsmg):
Approved for
Pending CCC
Agenda post

5. 12/16/20 11:20
am
Marita Tibbetts
(tibbettsmg):
Approved for CCC
Meeting Agenda

6. 12/16/20 12:37
pm
Stephen Raper
(sraper):
Approved for
Campus Curricula
Committee Chair

History

1. Apr 25, 2014 by
lahne (116.1)

2. May 24, 2016 by
kleb6b (116.4)

Catalog
Description

Introduction to limits, continuity, **differentiation,** ~~differentiation~~ and integration of algebraic and ~~elementary~~ transcendental functions. Applications in physical science and engineering. Credit will be given for only one of Math **1208, 1210,** ~~1208~~ or ~~Math 1214. Math 1214 may be accompanied by Math 1160 with Math department approval.~~

Prerequisites

A grade of "C" or better in both Math 1160 and one of Math 1120 or Math 1140; or by placement exam.

Field Trip
Statement

Credit Hours	LEC: 3	LAB: 1	IND: 0	RSD: 0
Total: 4				

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

Elective for
Majors   No

Justification for
change:

Since Math 1214 is now the primary Calculus I course and is taken by a significant number of non-engineers, we are removing "for Engineers" from the title. However, since the primary audience is still students in engineering and the sciences, retaining the reference to "Applications in physical science and engineering" is thoroughly appropriate.

As a result of the new Calculus I-A and I-B courses, we are removing the former clause which allowed some students to take both 1160 and 1214 simultaneously. This was typically not a good option for students, and we were only granting departmental approval in a very small number of cases (typically less than 5 students per semester in recent years), so this change will have an exceedingly minimal impact. We, of course, retain the ability to make this waiver in extraordinary

circumstances, but it's better to not advertise the possibility when it is granted only
on a very rare basis.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

<div style="text-align: right;">Key: 116</div>

Course Change Request

Date Submitted: 11/06/20 3:49 pm

Viewing: **MATH 1215 : Calculus ~~For Engineers~~ II**

File: 1695.5

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

Last edit: 11/06/20 3:49 pm

Changes proposed by: prunnion

Programs
referencing this
course

NU ENG-BS: Nuclear Engineering BS

PE ENG-BS: Petroleum Engineering BS

PHYSIC-BS: Physics BS

AE ENG-BS: Aerospace Engineering BS

AP MATH-BS: Applied Mathematics BS

ARC ENG-BS: Architectural Engineering BS

CR ENG-BS: Ceramic Engineering BS

CH ENG-BS: Chemical Engineering BS

CHEM-BA: Chemistry BA

CV ENG-BS: Civil Engineering BS

CP ENG-BS: Computer Engineering BS

EL ENG-BS: Electrical Engineering BS

GE ENG-BS: Geological Engineering BS

CHEM-BS: Chemistry BS

FR ENG-UN: Foundational Engineering and Computing

CMP SC-BS: Computer Science BS

ENG MG-BS: Engineering Management BS

EV ENG-BS: Environmental Engineering BS

GL&GPH-BS: Geology and Geophysics BS

MC ENG-BS: Mechanical Engineering BS

MT ENG-BS: Metallurgical Engineering BS

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. CAT entry
11. Peoplesoft

Approval Path

1. 11/06/20 4:26 pm vsam: Approved for RMATHEMA Chair
2. 11/10/20 6:17 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

[MI ENG-BS: Mining Engineering BS](#)

Other Courses referencing this course

In The Prerequisites:

[AERO ENG 2861 : Aerospace Vehicle Performance](#)

[AERO ENG 3131 : Aerodynamics I](#)

[AERO ENG 3251 : Aerospace Structures I](#)

[AERO ENG 3613 : Aerospace Mechanics I](#)

[CHEM ENG 2100 : Chemical Engineering Material & Energy Balances](#)

[CIV ENG 2200 : Statics](#)

[ECON 5337 : Financial Mathematics](#)

[ELEC ENG 2100 : Circuits I](#)

[GEO ENG 5331 : Subsurface Hydrology](#)

[MATH 2222 : Calculus with Analytic Geometry III](#)

[MATH 3108 : Linear Algebra I](#)

[MATH 3109 : Foundations Of Mathematics](#)

[MATH 5737 : Financial Mathematics](#)

[MECH ENG 2519 : Thermodynamics](#)

[MECH ENG 2527 : Thermal Analysis](#)

[MECH ENG 3313 : Machine Dynamics](#)

[MECH ENG 3411 : Modeling and Analysis of Dynamic Systems](#)

[NUC ENG 2105 : Introduction To Nuclear Engineering](#)

[STAT 3113 : Applied Engineering Statistics](#)

[STAT 3115 : Engineering Statistics](#)

Requested Effective Change Date	**Fall 2021** ~~08/14/2017~~
Department	Mathematics & Statistics
Discipline	Mathematics (MATH)
Course Number	1215

3. 11/17/20 1:05 pm Katie Shannon (shannonk): Approved for Sciences DSCC Chair

4. 11/25/20 8:46 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

5. 12/16/20 11:20 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

6. 12/16/20 12:37 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

History

1. Jan 13, 2017 by imorgan (1695.1)

Title   Calculus ~~For Engineers~~ II

Abbreviated   **Calculus II** ~~Calc For Engrs II~~

Course Title

Catalog

Description

~~Continuation of Math1214.~~**Techniques** ~~Transcendental functions, techniques~~ of

integration, **sequences and** ~~sequences,~~ series including power series, polar

coordinates, polar **and** ~~and~~ parametric equations. Applications in physical science

and engineering. Credit will be given for only one of Math 1215 or Math 1221.

Prerequisites

A grade of "C" ~~Math 1160 and either Math 1208~~ or **better in both Math 1160 and**

one of Math 1208 or 1214; or a grade of "C" or better in both Math **1210 and Math**

1211; or a grade of "C" or better in both Math 1214 **and 1211; or a grade of "C" or**

better in Math 1214 and successful trigonometry placement. ~~both with a grade of~~

~~"C" or better; or by placement exam.~~

Field Trip

Statement

Credit Hours	LEC: 3	LAB: 1	IND: 0	RSD: 0
Total: 4				

Required for   Yes

Majors

Elective for   No

Majors

Justification for

change:

Since Math 1215 is now the primary Calculus II course and is taken by a significant

number of non-engineers, we are removing "for Engineers" from the title. However,

since the primary audience is still students in engineering and the sciences, retaining

the reference to "Applications in physical science and engineering" is thoroughly

appropriate.

As a result of the new Math 1210 (Calculus I-A) and Math 1211 (Calculus I-B), we need to modify the prerequisite so that all possible prerequisite paths are addressed. (See the justification on the CC form for Math 1211 for why the seemingly strange prerequisite path of 1214 and 1211 is appropriate.)

Finally, we removed the reference to transcendental functions from the course description. As a result of the introduction of 1210 and 1211, we are moving more of the transcendental functions content to Math 1214 (and thus 1210 and 1211). The 1214 description already mentioned transcendental functions, and since the vast majority of that will be in 1214, it is no longer appropriate to mention it in the 1215 description. This change will be a BIG positive for most students, since they will now see the derivatives and integrals of exponential and logarithmic functions earlier and they will thus be even better prepared for Physics 1135 and other subsequent coursework than they are currently. This change should not cause any negative issues whatsoever for any courses which list 1214 and/or 1215 as a prerequisite.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Key: 1695

Preview Bridge

Course Change Request

Date Submitted: 11/06/20 3:59 pm

Viewing: **MATH 2222 : Calculus** ~~**with Analytic Geometry**~~ **III**

File: 340.4

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

Last edit: 11/06/20 3:59 pm

Changes proposed by: prunnion

Programs
referencing this
course

  NU ENG-BS: Nuclear Engineering BS

  PE ENG-BS: Petroleum Engineering BS

  PHYSIC-BS: Physics BS

  AE ENG-BS: Aerospace Engineering BS

  AP MATH-BS: Applied Mathematics BS

  ARC ENG-BS: Architectural Engineering BS

  CR ENG-BS: Ceramic Engineering BS

  CH ENG-BS: Chemical Engineering BS

  CV ENG-BS: Civil Engineering BS

  CP ENG-BS: Computer Engineering BS

  EL ENG-BS: Electrical Engineering BS

  GE ENG-BS: Geological Engineering BS

  CHEM-BS: Chemistry BS

  ENG MG-BS: Engineering Management BS

  EV ENG-BS: Environmental Engineering BS

  GL&GPH-BS: Geology and Geophysics BS

  MC ENG-BS: Mechanical Engineering BS

  MT ENG-BS: Metallurgical Engineering BS

  MI ENG-BS: Mining Engineering BS

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. CAT entry
11. Peoplesoft

Approval Path

1. 11/06/20 4:26 pm vsam: Approved for RMATHEMA Chair
2. 11/10/20 6:18 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

~~AER ENG 33: Mining Engineering 33~~

Other Courses

referencing this

course

In The Prerequisites:

AERO ENG 2360 : Dynamics

AERO ENG 3131 : Aerodynamics I

AERO ENG 3251 : Aerospace Structures I

AERO ENG 3613 : Aerospace Mechanics I

CHEM 5420 : Elemental Quantum Chemistry

CHEM ENG 3110 : Chemical Engineering Heat Transfer

CIV ENG 3842 : Fundamentals of Building Systems

COMP SCI 5204 : Regression Analysis

ELEC ENG 5200 : Classical Optics

ENV ENG 3603 : Chemical Fundamentals Of Environmental
Engineering

GEO ENG 5782 : Environmental and Engineering Geophysics

GEOLOGY 6211 : Geodynamics

GEOPHYS 5241 : Advanced Electrical And Electromagnetic
Methds In Geophysical Exp

GEOPHYS 5251 : Introduction To Geophysical Data Analysis

GEOPHYS 5782 : Environmental and Engineering Geophysics

MATH 3304 : Elementary Differential Equations

MATH 4209 : Advanced Calculus I

MATH 5222 : Vector And Tensor Analysis

MATH 5940 : Mathematical Analysis For Secondary Teachers

MECH ENG 2360 : Dynamics

MECH ENG 2519 : Thermodynamics

MECH ENG 3313 : Machine Dynamics

MECH ENG 3411 : Modeling and Analysis of Dynamic Systems

MECH ENG 5543 : Energy Efficiency of Vehicles

MECH ENG 5763 : Computer Aided Design: Theory and
Practice

NUC ENG 3103 : Interactions Of Radiation With Matter

PET ENG 6711 : Geodynamics

PHYSICS 2305 : Introduction To Modern Physics

3. 11/17/20 1:05 pm
   Katie Shannon
   (shannonk):
   Approved for
   Sciences DSCC
   Chair

4. 11/25/20 8:47 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for
   Pending CCC
   Agenda post

5. 12/16/20 11:21
   am
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Meeting Agenda

6. 12/16/20 12:37
   pm
   Stephen Raper
   (sraper):
   Approved for
   Campus Curricula
   Committee Chair

History

1. Oct 19, 2015 by
   imorgan (340.1)

PHYSICS 2305 : Introduction To Modern Physics

PHYSICS 4503 : Classical Optics

PHYSICS 4563 : Astrophysical Concepts

PHYSICS 4615 : Physics For Secondary School Teachers

STAT 3117 : Introduction To Probability And Statistics

STAT 5346 : Regression Analysis

STAT 5353 : Statistical Data Analysis

STAT 5643 : Probability And Statistics

Requested Effective Change Date	**Fall 2021** ~~01/12/2016~~
Department	Mathematics & Statistics
Discipline	Mathematics (MATH)
Course Number	2222
Title	Calculus ~~with Analytic Geometry~~ III
Abbreviated Course Title	**Calculus III** ~~Calc with Analy Geom III~~

Catalog Description

An introduction to multivariable calculus. Vector valued functions, curves and surfaces in two and three dimensions, partial differentiation, multiple integration, line and surface integrals, the major theorems of vector calculus, and applications of these ideas are studied.

Prerequisites

A grade of "C" ~~Math 1215~~ or **better in either Math 1215** ~~Math 1221 with a grade of "C"~~ or **Math 1221.** ~~better.~~

Field Trip Statement

Credit Hours	LEC: 3	LAB: 1	IND: 0	RSD: 0
Total: 4				

Required for Majors	Yes
Elective for Majors	No

Justification for change:

Two very tiny changes. First, I removed the "with Analytic Geometry" from the title so that the titles of 1214, 1215, and 2222 now are of equal simplicity. Second, I reworded the prerequisite so the wording of the prerequisites of 1214, 1215, and 2222 now match.

This change will have an impact on precisely zero other courses, programs, academic departments, etc. and will require very minimal changes on the Registrar's end.

Compared to some of the other CC forms we're submitting this cycle, this one should be nice and easy!

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 340

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 11/05/20 2:14 pm

Viewing: **MATH 5601 : Introduction to Numerical Analysis**

File: 4757

Last edit: 11/06/20 7:49 am

Changes proposed by: prunnion

Requested Effective Change Date	Fall 2021
Department	Mathematics & Statistics
Discipline	Mathematics (MATH)
Course Number	5601
Title	
Introduction to Numerical Analysis	
Abbreviated Course Title	Intro Num Analysis

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. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

Approval Path

1. 11/05/20 2:32 pm vsam: Approved for RMATHEMA Chair
2. 11/06/20 7:49 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

3. 11/17/20 1:06 pm
   Katie Shannon
   (shannonk):
   Approved for
   Sciences DSCC
   Chair
4. 11/25/20 8:47 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for
   Pending CCC
   Agenda post
5. 12/16/20 11:21
   am
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Meeting Agenda
6. 12/16/20 12:37
   pm
   Stephen Raper
   (sraper):
   Approved for
   Campus Curricula
   Committee Chair

Mathematical foundation and theory of the basic numerical methods for nonlinear equations, function approximations, numerical differentiation/integration, ordinary differential equations, and matrix computation, including convergence, accuracy, and stability analysis; extension of the basic methods to the corresponding more advanced methods.

Prerequisites
  Math 3304

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 new course:

This course was successfully offered in Fall 2019 and Fall 2020 by Dr. Xiaoming He, and we intend to continue offering this course on a regular basis. As we grow the computational offerings in the department, having a very clearly defined introductory course both for majors and non-majors is important. Students earning a BS in Applied Mathematics with a Computational Mathematics emphasis will be required to take this course starting with the Fall 2021 catalog (a separate DC form is being submitted with changes to the computational emphasis), other mathematics undergraduates are likely to choose this course as part of their upper level math courses, and graduate students in their first semester on campus who are focusing on computational mathematics may also need this course.

Semesters previously offered as an experimental course

Fall 2019, Fall 2020

Co-Listed Courses:

Course Reviewer Comments

tibbettsmg (11/06/20 7:49 am): Enrollment FS19: 10, FS20: 8

Key: 4757

Preview Bridge

Course Change Request

Date Submitted: 11/05/20 2:19 pm

Viewing: **MATH 5602** ~~6602~~ **: Mathematical Foundation of Finite Element Methods**

File: 4061.3

Last approved: 07/07/14 3:48 am

Last edit: 11/05/20 2:19 pm

Changes proposed by: prunnion

Requested Effective Change Date	**Fall 2021** ~~08/01/2014~~
Department	Mathematics & Statistics
Discipline	Mathematics (MATH)
Course Number	**5602** ~~6602~~
Title	Mathematical Foundation of Finite Element Methods
Abbreviated Course Title	Math Foundation of FEMs

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. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

Approval Path

1. 11/05/20 2:33 pm vsam: Approved for RMATHEMA Chair
2. 11/06/20 7:51 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

3. 11/17/20 1:06 pm
   Katie Shannon
   (shannonk):
   Approved for
   Sciences DSCC
   Chair
4. 11/25/20 8:48 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for
   Pending CCC
   Agenda post
5. 12/16/20 11:21
   am
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Meeting Agenda
6. 12/16/20 12:37
   pm
   Stephen Raper
   (sraper):
   Approved for
   Campus Curricula
   Committee Chair

History

1. Jul 7, 2014 by
   Ilene Morgan
   (imorgan)

Implementation and theoretical analysis of the finite element method for the
approximate solution of partial differential equations. Implementation of finite
element methods for elliptic and parabolic equations. Theoretical analysis of
convergence, accuracy, and stability of approximate solutions.

Prerequisites

Math 5601, ~~Any 4000~~ or ~~higher level Mathematics course, or~~ any instructor approved **4000-level or higher** ~~4000 or higher level~~ course from another discipline with a significant computational component.

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:

As we work to both improve and streamline our computational course offerings in the department, it became apparent that this course was a better fit at the 5000-level, particularly as part of a two-semester sequence with the new Math 5601 (a separate CC form has been submitted to acquire a permanent course number now that the new Math 5601 has been offered twice as a 5001 experimental course). Making this course a 5000-level course makes it far more attractive to students from outside the department (who typically find this course very useful), and also makes it more attractive to undergraduates in the department who may choose to take the course as an upper-division math elective and will no longer need special permission to take a 6000-level course.

Semesters previously offered as an experimental course

SP 2013, SP 2014 (as Finite Elements for PDEs)

Co-Listed Courses:

Course Reviewer

Comments

Key: 4061

Course Change Request

Date Submitted: 11/05/20 8:59 am

Viewing: **MET ENG 3220 : Introduction To Extractive Metallurgy**

File: 1903.10

Last approved: 04/03/17 3:15 am

Last edit: 11/05/20 1:59 pm

Changes proposed by: smiller

Programs
referencing this
course

MT ENG-BS: Metallurgical Engineering BS

Other Courses
referencing this
course

In The Prerequisites:

MET ENG 3225 : Extractive Metallurgy Laboratory

MET ENG 5480 : Refining Of Metals

Requested Effective Change Date	**Fall 2021** ~~08/14/2017~~
Department	Materials Science & Engineering
Discipline	Metallurgical Engineering (MET ENG)
Course Number	3220
Title	

Introduction To Extractive Metallurgy

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. 11/05/20 10:59 am
   Greg Hilmas (ghilmas): Approved for RMATSENG Chair
2. 11/05/20 1:59 pm
   Marita Tibbetts (tibbettsmg):

Abbreviated Course Title	Intro Extractive Met

Catalog
Description

Approved for CCC Secretary

3. 11/20/20 12:31 pm
   Stephen Raper (sraper):
   Approved for Engineering DSCC Chair

4. 11/25/20 8:49 am
   Marita Tibbetts (tibbettsmg):
   Approved for Pending CCC Agenda post

5. 12/16/20 11:21 am
   Marita Tibbetts (tibbettsmg):
   Approved for CCC Meeting Agenda

6. 12/16/20 12:37 pm
   Stephen Raper (sraper):
   Approved for Campus Curricula Committee Chair

History

1. Nov 3, 2014 by smiller (1903.1)
2. May 6, 2016 by smiller (1903.4)

3. Apr 3, 2017 by
smiller (1903.6)

Production and refining of metals by pyrometallurgy, hydrometallurgy, and electrometallurgy. Emphasis on heat and mass balance calculations for the unit processes of metals extraction. Introduction to the principles of combustion, heat utilization and recovery.

Prerequisites
A grade of "C" or better in either Chem 1320 or Met Eng 1210. Preceded or accompanied by Met Eng 3330 or Cer Eng 3230 or Chem Eng **2110.** ~~2210.~~

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:
Typo in prerequisites. need to change Chem Eng 2210 to Chem Eng 2110.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 1903

Preview Bridge

Course Change Request

Date Submitted: 11/09/20 2:07 pm

Viewing: **NUC ENG 3221 : Reactor Fluid Mechanics**

File: 2639.1

Last edit: 12/16/20 1:52 pm

Changes proposed by: schlegelj

Programs
referencing this
course

  NU ENG-BS: Nuclear Engineering BS

  AP MATH-BS: Applied Mathematics BS

  MI ENG-BS: Mining Engineering BS

Other Courses
referencing this
course

  In The Prerequisites:

  AERO ENG 5570 : Plasma Physics I

  MECH ENG 5570 : Plasma Physics I

  MIN ENG 5113 : Mine Atmosphere Control

  MIN ENG 5912 : Mine Power and Drainage

  NUC ENG 3223 : Reactor Heat Transfer

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

  NUC ENG 4370 : Plasma Physics I

  NUC ENG 5370 : Plasma Physics I

  PHYSICS 4543 : Plasma Physics 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. 11/10/20 1:58 pm AYODEJI Alajo (alajoa): Approved for NUC ENG Chair
2. 11/10/20 2:06 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

Requested Effective Change Date	**Fall 2021** ~~08/14/2018~~

Department	Mining & Nuclear Engineering
Discipline	Nuclear Engineering (NUC ENG)
Course Number	3221

Title

Reactor Fluid Mechanics

Abbreviated Course Title	Reactor Fluid Mechanics

Catalog Description

3. 11/20/20 12:31 pm Stephen Raper (sraper): Approved for Engineering DSCC Chair
4. 11/25/20 8:50 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 12/16/20 1:52 pm Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda
6. 12/16/20 2:31 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

A study of the fundamental principles of incompressible viscous and inviscid flows in ducts, nozzles, tube bundles and applications to nuclear engineering; fluid statics; dimensional analysis and similitude; boundary layer theory.

Prerequisites

Mech Eng 2519, Math 3304, Junior standing.

Field Trip Statement

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

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

Elective for   No
Majors

Justification for
change:
  Improve student preparedness

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Key: 2639

Preview Bridge

Course Change Request

Date Submitted: 11/09/20 2:08 pm

Viewing: **NUC ENG 4312 : Nuclear Radiation Measurements and Spectroscopy**

File: 1981.1

Last edit: 12/16/20 1:52 pm

Changes proposed by: schlegelj

Programs referencing this course

  NU ENG-BS: Nuclear Engineering BS

  NU ENG-MI: Nuclear Engineering Minor

  SFTYENG-CT: Safety Engineering

Other Courses referencing this course

 In The Prerequisites:

  NUC ENG 4350 : Introduction to Nuclear Medical Science

  NUC ENG 4428 : Reactor Laboratory I

  NUC ENG 5350 : Advanced Nuclear Medical Science

  NUC ENG 5428 : Reactor Laboratory I

Requested Effective Change Date	**Fall 2021** ~~08/14/2018~~
Department	Mining & Nuclear Engineering
Discipline	Nuclear Engineering (NUC ENG)

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. 11/10/20 1:58 pm AYODEJI Alajo (alajoa): Approved for NUC ENG Chair
2. 11/10/20 2:08 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

Course Number   4312

Title

   Nuclear Radiation Measurements and Spectroscopy

Abbreviated   Nuc Rad Measurements &
Course Title   Spectro

Catalog
Description

3. 11/20/20 12:31 pm
   Stephen Raper
   (sraper):
   Approved for
   Engineering DSCC
   Chair
4. 11/25/20 8:50 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for
   Pending CCC
   Agenda post
5. 12/16/20 1:52 pm
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Meeting Agenda
6. 12/16/20 2:31 pm
   Stephen Raper
   (sraper):
   Approved for
   Campus Curricula
   Committee Chair

Contemporary radiation detection theory and experiments with high resolution
gamma-ray spectroscopy, solid state detectors, neutron detection and conventional
gas filled detectors. Neutron activation analysis of unknown material, statistical
aspects of nuclear measurements.

Prerequisites

   Nuc Eng **3205, Elec Eng 2800.** ~~3205.~~

Field Trip
Statement

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

Total: 3

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

Justification for change:

  To improve student preparedness

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 1981

Preview Bridge

Course Change Request

Date Submitted: 11/09/20 12:56 pm

Viewing: **NUC ENG 4496 : Nuclear System Design I**

File: 2371.4

Last approved: 06/26/17 3:15 am

Last edit: 11/10/20 2:09 pm

Changes proposed by: schlegelj

Catalog Pages
referencing this
course
Nuclear Engineering

Programs
referencing this
course
NU ENG-BS: Nuclear Engineering BS

Other Courses
referencing this
course

In The Prerequisites:

NUC ENG 4497 : Nuclear System Design II

Requested **Fall 2021** ~~01/09/2018~~
Effective Change
Date

Department   Mining & Nuclear Engineering

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. 11/10/20 1:58 pm AYODEJI Alajo (alajoa): Approved for NUC ENG Chair
2. 11/10/20 2:09 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

Discipline   Nuclear Engineering (NUC ENG)

Course Number   4496

Title
  Nuclear System Design I

Abbreviated   Nuclear System Design I
Course Title

Catalog
Description

3. 11/20/20 12:31
   pm
   Stephen Raper
   (sraper):
   Approved for
   Engineering DSCC
   Chair
4. 11/25/20 8:51 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for
   Pending CCC
   Agenda post
5. 12/16/20 11:21
   am
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Meeting Agenda
6. 12/16/20 12:37
   pm
   Stephen Raper
   (sraper):
   Approved for
   Campus Curricula
   Committee Chair

History

1. Jun 26, 2017 by
   castanoc (2371.1)

A preliminary design of a nuclear system (e.g. a fission or fusion nuclear reactor
plant, a space power system, a radioactive waste disposal system).

Prerequisites

Nuc Eng 3223, Nuc Eng **4203;** ~~4203, and Nuc Eng 4229,~~ preceded or accompanied by Nuc Eng 4241.

Field Trip
Statement

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

Required for Majors	Yes

Elective for Majors	No

Justification for change:

  Preparation for upcoming changes to the curriculum.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 2371

Preview Bridge

Course Change Request

New Course Proposal

Date Submitted: 11/07/20 11:38 pm

Viewing: **POL SCI 4320 : Policy for Science, Technology, and Innovation**

File: 4750

Last edit: 11/20/20 9:07 am

Changes proposed by: gamezp

Programs
referencing this
course

[PROPOSED: UCT - Technology, Philosophy, and Ethical Futures](#)
[PROPOSED: UCT - Science, Technology, and Society](#)

Requested Effective Change Date	Fall 2021
Department	History and Political Science
Discipline	Political Science (POL SCI)
Course Number	4320
Title	Policy for Science, Technology, and Innovation
Abbreviated Course Title	Policy for Sci and Tech

Catalog
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. CAT entry
11. Peoplesoft

Approval Path

1. 10/21/20 3:55 pm
   Michael Bruening
   (bruening):
   Approved for
   RHISTORY Chair
2. 10/22/20 11:47 am
   Marita Tibbetts
   (tibbettsmg):

Rollback to Initiator

3. 11/09/20 10:02 am
Michael Bruening (bruening):
Approved for RHISTORY Chair

4. 11/20/20 5:58 am
Marita Tibbetts (tibbettsmg):
Approved for CCC Secretary

5. 11/20/20 9:07 am
Petra Dewitt (dewittp):
Approved for Arts & Humanities DSCC Chair

6. 11/25/20 8:52 am
Marita Tibbetts (tibbettsmg):
Approved for Pending CCC Agenda post

7. 12/16/20 11:21 am
Marita Tibbetts (tibbettsmg):
Approved for CCC Meeting Agenda

8. 12/16/20 12:38 pm
Stephen Raper (sraper):
Approved for

Campus Curricula
Committee Chair

Do Google, Airbus, and Samsung owe their success to the wisdom and foresight of government actors? This course explores whether and how public policy can foster the advancement of science, technology, and innovation. The course analyzes and compares how national innovation systems have evolved and function in the United States, Europe, and Asia.

Prerequisites
  Pol Sci 1200 or History 1200 or History 1310

Field Trip
Statement

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

Required for Majors	No

Elective for Majors	Yes

Justification for
new course:
  This course has been taught experimentally twice before, though with differing requirements each time. Normally, it would not be eligible for a permanent course number without being run twice with the same prerequisites.

  However, we are submitting it here as a distribution requirement for a certificate in Technology, Philosophy, and Ethical Futures (proposal submitted), housed in ALP. It will also be a requirement for a certificate in Science, Technology, and Society, housed in History and Political Science (though this proposal has not yet been submitted).

  GGPE has also expressed interest in including this course in a graduate certificate, which is why we are proposing it here as a 4000-level course. In the past, it has not

drawn huge enrollments, but 1) it has historically been difficult to do so in the absence of a Political Science major, on campus, 2) its inclusion in new certificates at potentially both the graduate and undergraduate level should increase enrollments significantly, and 3) one of our three Political Science professors will be retired (without immediate replacement) effective Fall 2021, and so there will be significantly fewer options for upper-level Political Science courses. All of these issues indicate that the course should have no trouble filling in the future.

Semesters
previously
offered as an
experimental
course
   Spring 2018, Spring 2020

Co-Listed
Courses:

Course Reviewer
Comments
   tibbettsmg (10/22/20 11:05 am): The EC was approved and taught as a 3001 course. Taught in Spring 18 with no prerequisites (enrollment 21), then modified to add the prereqs and taught again in Spring 20 (enrollment 10). MT
   tibbettsmg (10/22/20 11:47 am): Rollback: Course must be successfully at least twice with the same criteria.
   tibbettsmg (11/20/20 5:58 am): required course for new UCT. mt

Key: 4750

Preview Bridge

Program Change Request

Date Submitted: 10/28/20 2:54 pm

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

File: 239.16

Last approved: 09/19/17 10:37 am

Last edit: 10/28/20 2:54 pm

Changes proposed by: cecq8z

Catalog Pages Using this Program
[Information Science and Technology](#)

Start Term
Fall 2021 ~~01/09/2018~~
Program Code
ANA&DTA-MI
Department
Business and Information Technology
Title
Business Analytics and Data Science Minor

Program Requirements and Description

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. Kristy Giacomelli-Feys

Approval Path

1. 08/29/20 11:14 am siauk: Approved for RINFSCTE Chair
2. 08/31/20 11:18 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 08/31/20 11:24 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 09/15/20 12:00 pm Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 10/07/20 10:08 am Marita Tibbetts (tibbettsmg): Rollback to Initiator
6. 10/19/20 3:53 pm siauk: Approved for RINFSCTE Chair

7. 10/19/20 4:23 pm Marita Tibbetts (tibbettsmg): Rollback to Initiator

8. 10/20/20 5:03 pm siauk: Approved for RINFSCTE Chair

9. 10/28/20 2:28 pm Marita Tibbetts (tibbettsmg): Rollback to Initiator

10. 10/28/20 4:04 pm siauk: Approved for RINFSCTE Chair

11. 10/29/20 8:26 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

12. 10/29/20 8:51 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

13. 11/25/20 7:41 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

14. 12/16/20 11:25 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

15. 12/16/20 12:35 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

History

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

Minor in Business Analytics and Data Science

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

IS&T 1750	Introduction to Management Information Systems	3
IS&T 3423	Database Management	3
IS&T 3420	Introduction to Data Science and Management	3
Two courses from the following list:		6
~~IS&T 4450~~	~~Introduction to Information Visualization~~	
IS&T 4641	**Digital Commerce and the Internet of Things**	
IS&T 5420	Business Analytics and Data Science	
IS&T 5450	**Course IS&T 5450 Not Found**	
IS&T 5520	Data Science and Machine Learning with Python	
BUS 5730	**Machine Learning and Artificial Intelligence for Business**	

Justification for request
Adding other analytics courses as options. Course renumbering.
Supporting Documents
Course Reviewer Comments
tibbettsmg (10/07/20 10:08 am): Rollback: rollback from CCC meeting. also change term to FS21.
tibbettsmg (10/19/20 4:20 pm): changed term to FS21. MT
tibbettsmg (10/19/20 4:23 pm): Rollback: Please attach supporting approval documents and resubmit at the same time as IS&T 4641 CC. MT
tibbettsmg (10/28/20 2:28 pm): Rollback: Rollback to change 5641. mt

Key: 239

Program Change Request

Date Submitted: 10/11/20 8:13 am

Viewing: **AI-MI : Minor in Artificial Intelligence and Machine Learning in Business**

File: 253.9

Last approved: 04/19/18 12:27 pm

Last edit: 10/19/20 4:06 pm

Changes proposed by: cecq8z

Catalog Pages Using this Program
[Business and Management Systems](#)
[Information Science and Technology](#)

Start Term
Fall 2021 ~~01/09/2018~~
Program Code
AI-MI
Department
Business and Information Technology
Title
Minor in Artificial Intelligence and Machine Learning in Business

Program Requirements and Description

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. Kristy Giacomelli-Feys

Approval Path

1. 08/29/20 11:14 am siauk: Approved for RINFSCTE Chair
2. 08/31/20 11:18 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 08/31/20 11:24 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 09/15/20 11:57 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 10/07/20 10:06 am Marita Tibbetts (tibbettsmg): Rollback to Initiator
6. 10/19/20 3:51 pm siauk: Approved for RINFSCTE Chair

7. 10/19/20 4:06 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
8. 10/29/20 8:51 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
9. 11/25/20 7:41 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
10. 12/16/20 11:25 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda
11. 12/16/20 12:35 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

History

1. Dec 11, 2017 by Barry Flachsbart (barryf)
2. Mar 12, 2018 by Brittany Parnell (ershenb)
3. Apr 18, 2018 by Brittany Parnell (ershenb)
4. Apr 19, 2018 by Brittany Parnell (ershenb)
5. Apr 19, 2018 by Brittany Parnell (ershenb)

Minor in Artificial Intelligence and Machine Learning in Business

The Minor requires 15 credit hours, as follows:

BUS 5730	Machine Learning and Artificial Intelligence for Business	3
IS&T 5535	Machine Learning Algorithms and Applications	3
IS&T 3420	Introduction to Data Science and Management	3
And two courses from the following list:		
STAT 3111	Statistical Tools For Decision Making	3
IS&T 3333	Data Networks and Information Security	3
IS&T 3343	Systems Analysis	3
IS&T 4450	Introduction to Information Visualization	3
IS&T 5420	Business Analytics and Data Science	3
IS&T 5450	Course IS&T 5450 Not Found	3
IS&T 5520	Data Science and Machine Learning with Python	3
ERP 5410	Use of Business Intelligence	3

Justification for request

Strong overlap in machine learning and data science. Update to reflect course renumbering.

Supporting Documents

Course Reviewer Comments

tibbettsmg (10/07/20 10:06 am): Rollback: rollback from CCC meeting. also change term to FS21.

tibbettsmg (10/19/20 4:06 pm): changed term to FS21. IST 5450 approval is pending 10/22 FS meeting. MT

Key: 253

Program Change Request

Date Submitted: 11/06/20 4:20 pm

Viewing: **AP MATH-BS : Applied Mathematics BS**

File: 142.47

Last approved: 07/01/20 1:37 pm

Last edit: 11/17/20 1:30 pm

Changes proposed by: prunnion

Catalog Pages Using this Program
[Mathematics](#)

Start Term
Fall **2021** ~~2020~~
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. 11/06/20 4:23 pm vsam: Approved for RMATHEMA Chair
2. 11/10/20 6:15 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 11/17/20 1:30 pm Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 11/25/20 7:42 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 12/16/20 11:25 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda
6. 12/16/20 12:36 pm Stephen Raper

(sraper): Approved for Campus Curricula Committee 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)

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 MATH 1214; OR 1210 AND 1211[1]	4-8	Science Requirement[5]	5

First Semester	Credits	Second Semester	Credits
CHEM 1100	1	COMP SCI 1500	3
ENGLISH 1120	3	Language and Communication Requirement[3]	3
Campus History Requirement[2]	3	Basic ROTC (if elected)[4]	0
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]	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	3	Electives	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	10
Electives	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.

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. 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 under teacher education 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 MATH 1214 OR MATH 1210 AND MATH 1211	4 or 8	BIO SCI 1113	3
CHEM 1100	1	BIO SCI 1219 (Science Lab Requirement)[1]	1
ENGLISH 1120	3	PSYCH 1101	3
HISTORY 1300 or 1310	3	EDUC 1164	2
EDUC 1040	2	EDUC 1174	2
EDUC 1104	2		
	16-20		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	6
ENGLISH 3170	3	Fine Art Elective[2]	3
EDUC 3216	3	PSYCH 2300 or EDUC 2102	3
	15		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 4310	3		
POL SCI 1200	3		
Literature	3		
Electives	2		
	17		13
Total Credits: 127-131			

1	May be met by BIO SCI 1219 or CHEM 1319, but if CHEM 1319 is used, one extra hour must be attained in any elective area to fulfill the 128 total hour requirement.
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.

Statistics Emphasis Area

Required courses:

STAT 5643	Probability And Statistics	3
STAT 5644	Mathematical Statistics	3
STAT 5346	Regression Analysis	3
STAT 5353	Statistical Data Analysis (Satisfies Capstone requirement)	3
Select two of the following:		6
BIO SCI 2223	General Genetics	3
COMP SCI 3200	Introduction To Numerical Methods	3
COMP SCI 5402	Introduction to Data Mining	3
STAT 5260	Statistical Data Analysis Using SAS	3

STAT 5814	Applied Time Series Analysis	3
And complete either A or B:		6
(A) Complete the following 2 courses:		
MATH 5215	Introduction To Real Analysis	3
MATH 5351	Introduction To Complex Variables	3
(B) Complete 6 hours from:		
MATH 5107	Combinatorics And Graph Theory	3
MATH 5108	Linear Algebra II	3
MATH 5603	Methods of Applied Mathematics	3

Justification for request

As part of the current calculus redesign, we will be offering new Math 1210 and Math 1211 courses (see separate CC forms) which, combined, cover the same calculus content as Math 1214. We want our majors to have the option to take either 1214 or the 1210-1211 sequence, so we have added that option.

To maintain consistent degree hours, students taking the 1210-1211 sequence will need four fewer free electives, so the degree audit should be built so that the free electives constitute sufficient additional coursework to reach the 128 hour requirement.

Supporting Documents

Course Reviewer Comments

tibbettsmg (11/10/20 6:15 am): updated term to FS21. MT

shannonk (11/17/20 1:30 pm): Changed Secondary Ed to reflect that both Math 1210 and 1211 can be taken instead of 1208 or 1214, also changed Bio Sci 1219 to one hour. With permission from Paul Runnion

Key: 142

Program Change Request

Date Submitted: 11/11/20 10:30 am

Viewing: AUTOENG-MI : Minor in Automation Engineering

File: 230.18

Last approved: 07/01/20 1:38 pm

Last edit: 11/11/20 10:30 am

Changes proposed by: kte

Catalog Pages Using this Program
[Electrical Engineering](#)

Start Term
Fall **2021** ~~2020~~
Program Code
AUTOENG-MI
Department
Electrical and Computer Engineering
Title
Minor in Automation Engineering

Program Requirements and 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. Kristy Giacomelli-Feys

Approval Path

1. 11/11/20 12:52 am Watkins (watkins): Approved for RELECENG Chair
2. 11/11/20 8:28 am Marita Tibbetts (tibbettsmg): Rollback to Initiator
3. 11/11/20 10:31 am Watkins (watkins): Approved for RELECENG Chair
4. 11/11/20 11:48 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
5. 11/20/20 12:30 pm Stephen Raper (sraper): Approved for Engineering DSCC Chair
6. 11/25/20 7:43 am Marita Tibbetts (tibbettsmg): Approved for

Pending CCC Agenda post

7. 12/16/20 11:25 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda
8. 12/16/20 12:36 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

History

1. Apr 28, 2014 by Kelvin Erickson (kte)
2. May 7, 2014 by Lahne Black (lahne)
3. Jul 20, 2015 by pantaleoa
4. Feb 27, 2018 by Kelvin Erickson (kte)
5. Apr 18, 2018 by Brittany Parnell (ershenb)
6. Jul 1, 2020 by Kelvin Erickson (kte)

Minor in Automation Engineering

A minor in automation engineering will require the following:

- Pass ELEC ENG 3340 Basic Programmable Logic Controllers with a "C" or better
- Pass one of the following courses with a "C" or better:
  - ELEC ENG 3320 Control Systems
  - MECH ENG 4479 Automatic Control Of Dynamic Systems
  - CHEM ENG 4110 Chemical Engineering Process Dynamics And Control

- Pass 9 additional hours of coursework from the following list. A "C" or better is required for all 9 hours.
  - CHEM ENG 4140 Chemical Process Safety
  - CHEM ENG 4241 Process Safety in Chemical & Biochemical Industries
  - CHEM ENG 5190/ELEC ENG 5350 Plantwide Process Control
  - **CHEM ENG 5355/ELEC ENG 5355 Process Control System Safety, Security and Alarms**
  - CHEM ENG 4310/MECH ENG 5644 Interdisciplinary Problems In Manufacturing Automation
  - ELEC ENG 4380 Practicum in Automation Engineering (no more than one can be applied to the Automation Engineering Minor)

- ELEC ENG 5340 Advanced PLC
- ELEC ENG 5345 PLC Motion Control
- ELEC ENG 5870/MECH ENG 5478 Mechatronics
- MECH ENG 5420 Signal Processing for Instrumentation and Control
- MECH ENG 5449 Robotic Manipulators and Mechanisms
- MECH ENG 5655 Manufacturing Equipment Automation

Justification for request

Add to "Pass 9 additional hours of coursework..."

CHEM ENG 5355/ELEC ENG 5355 Process Control System Safety, Security and Alarms

A proposed new course

Supporting Documents

Minor In Automation Engineering 2021.pdf

Course Reviewer Comments

tibbettsmg (11/11/20 8:28 am): Rollback: proposed changes must be made within course lists/text boxes. MT

Key: 230

Program Change Request

Date Submitted: 11/09/20 4:00 pm

Viewing: BIO SC-BA : Biological Sciences BA

File: 146.26

Last approved: 07/01/20 1:38 pm

Last edit: 11/09/20 4:00 pm

Changes proposed by: shannonk

Catalog Pages Using this Program
[Biological Sciences](#)

Start Term
Fall **2021** ~~2020~~
Program Code
BIO SC-BA
Department
Biological Sciences
Title
Biological Sciences BA

Program Requirements and 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. Kristy Giacomelli-Feys

Approval Path

1. 11/09/20 4:06 pm David Duvernell (duvernelld): Approved for RBIOLSCI Chair
2. 11/10/20 6:34 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 11/17/20 12:27 pm Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 11/25/20 7:43 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 12/16/20 11:25 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

6. 12/16/20 12:36 pm
Stephen Raper
(sraper): Approved
for Campus
Curricula
Committee Chair

History

1. Aug 1, 2014 by
Katie Shannon
(shannonk)
2. Jul 14, 2015 by
pantaleoa
3. Oct 7, 2016 by
Katie Shannon
(shannonk)
4. Jun 28, 2017 by
Katie Shannon
(shannonk)
5. Nov 14, 2017 by
Katie Shannon
(shannonk)
6. Jun 18, 2018 by
Katie Shannon
(shannonk)
7. Jul 1, 2020 by Katie
Shannon
(shannonk)

Bachelor of Arts
Biological Sciences
Degree Requirements

Specific requirements for the B.A. degree in biological sciences include a minimum of 120 semester hours of credit, including 30 hours of biology core courses. A "C" or better is required for all Biological Science courses.

Core Courses		
BIO SCI 1201	Biological Sciences Freshman Seminar	1
BIO SCI 1113	General Biology	3
or BIO SCI 1213	Principles of Biology	
BIO SCI 1219	General Biology Lab	1
BIO SCI 1223	Biodiversity	3
BIO SCI 1229	Biodiversity Lab	1
BIO SCI 2213	Cell Biology	3
BIO SCI 2219	Cell Biology Laboratory	1
BIO SCI 2223	General Genetics	3

BIO SCI 2263	Ecology	3
BIO SCI 3233	Evolution	3
BIO SCI 4010	Seminar	1
Advanced courses, 2000 level or higher (at least one with laboratory and one 3000 or 4000 level)		9
Chemistry		

CHEM 1310
   & CHEM 1319
   & CHEM 1320
   & CHEM 1100
	General Chemistry I
	   and General Chemistry Laboratory
	   and General Chemistry II
	   and Introduction To Laboratory Safety & Hazardous Materials
		9

CHEM 2210
   & CHEM 2220
	Organic Chemistry I
	   and Organic Chemistry II
		6

Mathematics & Physical Science		
Various courses in mathematics, physics, and/or geology chosen in consultation with academic advisor. (Note: Proficiency in College Algebra must be demonstrated by a grade of "C" or better in a College Algebra course or by examination)		9
Computer Science/Statistics (Select one of the following:)		3-4

COMP SCI 1570
     & COMP SCI 1580
	Introduction To C++ Programming
	   and Introduction To Programming Laboratory	

or COMP SCI 1971
     & COMP SCI 1981
	Introduction To Programming Methodology
	   and Programming Methodology Laboratory	

STAT 3111	Statistical Tools For Decision Making	
STAT 3425	Introduction to Biostatistics	4
General Requirements for BA		
English Composition		6
ENGLISH 1120	Exposition And Argumentation	
One additional composition course		
Western Civilizations		6
HISTORY 1100	Early Western Civilization	
HISTORY 1200	Modern Western Civilization	
Foreign Language (three semesters of a foreign language)		12
Humanities (including one class in each of literature, philosophy, and fine arts)		12
Social Sciences (including classes in two of the following three subjects: economics, political science, psychology)		12

Elective credits: In consultation with his or her advisor, each student will elect sufficient additional courses to complete a minimum of 120 credit hours.

Bachelor of Arts
Biological Sciences
Pre-Medicine Emphasis Area
Degree Requirements

The student will fulfill the requirements for a bachelor of arts in biological sciences as outlined above. The following classes are also required:

CHEM 2219	Organic Chemistry I Lab	2
& CHEM 2229	and Organic Chemistry II Lab	
2 semesters of Physics and labs:		8-10
PHYSICS 1145	College Physics I	
or PHYSICS 1135	Engineering Physics I	
PHYSICS 2145	College Physics II	
or PHYSICS 2135	Engineering Physics II	

The following classes are highly recommended:

BIO SCI 3333	Human Anatomy and Physiology I	3
BIO SCI 3339	Human Anatomy Physiology I Lab	1
BIO SCI 3343	Human Anatomy and Physiology II	3
BIO SCI 3349	Human Anatomy and Physiology II Laboratory	1
CHEM 4610	General Biochemistry	3

Bachelor of Arts
Biological Sciences
Secondary Education Emphasis Area
Degree Requirements

You may earn a B.A. degree in biological sciences from Missouri S&T and certification to teach at the secondary level in the schools of Missouri with this emphasis area. This program can be completed in four academic years, and student teaching is arranged with public schools within 30 miles of the Rolla campus.

Students interested in this emphasis area should consult with the advisor for biological sciences education majors in the biological sciences 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 average for all biology courses and professional education courses. Current Missouri S&T or transfer students who wish to pursue this emphasis area must meet both these GPA requirements to be accepted into the program. Students must also meet all requirements listed under the teacher education program in this 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 required course work.

A degree in this emphasis area requires 131 credit hours. The required courses are provided below. A minimum grade of "C" is required by the department in all biological sciences courses counted toward this degree.

Humanities: 18 semester hours		
ENGLISH 1120	Exposition And Argumentation	3
ENGLISH 1160	Writing And Research	3
or ENGLISH 3560	Technical Writing	
SP&M S 1185	Principles Of Speech	3
At least one course in each of the following: Literature, Philosophy and Fine Arts		9
Social Sciences: 15 semester hours		
HISTORY 3530	History of Science	3
HISTORY 1100	Early Western Civilization	3

HISTORY 1200	Modern Western Civilization	3
POL SCI 1200	American Government	3
PSYCH 1101	General Psychology	3
Mathematics/Physical Science: 9 semester hours		
MATH 1103	Fundamentals Of Algebra	3
PHYSICS 1145	College Physics I	3
or PHYSICS 1505	Introductory Astronomy	
GEOLOGY 1110	Physical And Environmental Geology	3
Computer Science/Statistics: 3 semester hours		
3 semester hours of Computer Science or Statistics		3
Chemistry: 17 semester hours		
CHEM 1310 & CHEM 1319 & CHEM 1320 & CHEM 1100	General Chemistry I and General Chemistry Laboratory and General Chemistry II and Introduction To Laboratory Safety & Hazardous Materials	9
CHEM 2210 & CHEM 2220	Organic Chemistry I and Organic Chemistry II	6
Biological Sciences: 27 semester hours		
BIO SCI 1201	Biological Sciences Freshman Seminar	1
BIO SCI 1213	Principles of Biology	3
or BIO SCI 1113	General Biology	
BIO SCI 1219	General Biology Lab	1
BIO SCI 1223 & BIO SCI 1229	Biodiversity and Biodiversity Lab	4
BIO SCI 1173	Introduction to Environmental Sciences	3
BIO SCI 2213 & BIO SCI 2219	Cell Biology and Cell Biology Laboratory	4
BIO SCI 2223	General Genetics	3
BIO SCI 2263	Ecology	3
BIO SCI 3233	Evolution	3
BIO SCI 4010	Seminar	1
Education: 42 semester hours		
EDUC 1040	Perspectives In Education	2
EDUC 1104	Teacher Field Experience I	2
EDUC 1164	Teacher Field Experience II	2
EDUC 1174	School Organization and Administration For Teachers	2
EDUC 3216	Teaching Reading in Content Area	3
EDUC 3280	Teaching Methods and Skills in Content Areas	6
EDUC 4298	Student Teaching Seminar	1
EDUC 4299	Student Teaching	12
ENGLISH 3170	Teaching And Supervising Reading and Writing	3

PSYCH 2300	Educational Psychology	3
PSYCH 3310	Developmental Psychology	3
PSYCH 4310	Psychology Of The Exceptional Child	3

Justification for request

Gen Bio Lab 1219 changed from 2 hours to 1 hour

Supporting Documents

Course Reviewer Comments

Key: 146

Program Change Request

Date Submitted: 11/09/20 4:01 pm

Viewing: **BIO SC-BS : Biological Sciences BS**

File: 147.18

Last approved: 04/28/20 9:45 am

Last edit: 12/16/20 11:23 am

Changes proposed by: shannonk

Catalog Pages Using this Program

[Biological Sciences](#)

Start Term

Fall **2021** ~~2020~~

Program Code

BIO SC-BS

Department

Biological Sciences

Title

Biological Sciences BS

Program Requirements and 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. Kristy Giacomelli-Feys

Approval Path

1. 11/09/20 4:06 pm David Duvernell (duvernelld): Approved for RBIOLSCI Chair
2. 11/10/20 6:35 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 11/17/20 12:27 pm Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 11/25/20 7:45 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 12/16/20 11:23 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

6. 12/16/20 12:36 pm
   Stephen Raper
   (sraper): Approved
   for Campus
   Curricula
   Committee Chair

History

1. Aug 1, 2014 by
   Katie Shannon
   (shannonk)
2. Feb 1, 2016 by
   Ilene Morgan
   (imorgan)
3. Jun 18, 2018 by
   Katie Shannon
   (shannonk)
4. Jan 30, 2020 by
   Katie Shannon
   (shannonk)
5. Apr 28, 2020 by
   Katie Shannon
   (shannonk)

Bachelor of Science
Biological Sciences
Degree Requirements

A minimum of 124 credit hours is required for a Bachelor of Science degree in Biological Science.

A minimum grade of "C" is required for each Biological Science course used to fulfill the B.S. degree requirements.

These requirements for the B.S. degree are in addition to credit that is received for basic ROTC.

The Biological Science B.S. degree must include **48** ~~49~~ semester hours of biological sciences course work, to include:

BIO SCI 1201	Biological Sciences Freshman Seminar	1
BIO SCI 1113	General Biology	3
or BIO SCI 1213	Principles of Biology	
BIO SCI 1219	General Biology Lab	1
BIO SCI 1223	Biodiversity	3
BIO SCI 1229	Biodiversity Lab	1
BIO SCI 2213	Cell Biology	3
BIO SCI 2219	Cell Biology Laboratory	1
BIO SCI 2223	General Genetics	3
BIO SCI 2263	Ecology	3

BIO SCI 3233	Evolution	3
BIO SCI 4010	Seminar	1
Advanced biological sciences or approved course work in other departments for a total of 48 credit hours of biology-related classes to include at least one laboratory course from the following:		25
BIO SCI 3319	Microbiology Lab	
or BIO SCI 3339	Human Anatomy Physiology I Lab	
or BIO SCI 3349	Human Anatomy and Physiology II Laboratory	
or BIO SCI 4329	Molecular Genetics Laboratory	
19 semester hours of chemistry to include general chemistry		19
CHEM 1310 & CHEM 1319 & CHEM 1320 & CHEM 1100	General Chemistry I and General Chemistry Laboratory and General Chemistry II and Introduction To Laboratory Safety & Hazardous Materials	
CHEM 2210 & CHEM 2219 & CHEM 2220 & CHEM 2229	Organic Chemistry I and Organic Chemistry I Lab and Organic Chemistry II and Organic Chemistry II Lab	
2 semesters of College (Engineering) Physics and labs		8
PHYSICS 1145	College Physics I	
or PHYSICS 1135	Engineering Physics I	
PHYSICS 2145	College Physics II	
or PHYSICS 2135	Engineering Physics II	
Math and Statistics		8-9
MATH 1208	Calculus With Analytic Geometry I	
or MATH 1214	Calculus For Engineers I	
or MATH 1212	Business Calculus	
STAT 3425	Introduction to Biostatistics	4
12 semester hours of humanities, excluding foreign language, and to include:		12
ENGLISH 1120 & ENGLISH 1160	Exposition And Argumentation and Writing And Research (entering students will normally take ENGLISH 1120 either semester of the first year)	
9 hours of social sciences, to include		9
HISTORY 1200	Modern Western Civilization (or equivalent)	
or HISTORY 1300	American History To 1877	
or HISTORY 1310	American History Since 1877	
or POL SCI 1200	American Government	
Total Credits		108-109

Elective credits: In consultation with his or her advisor, each student will elect sufficient additional courses to complete a minimum of 124 credit hours.

Justification for request

Gen Bio lab change from 2 to 1 hour

Supporting Documents

Course Reviewer Comments

tibbettsmg (12/16/20 11:23 am): updated "advanced bio sci or approved course work...for a total of 48 credit hours" MT

Key: 147

Program Change Request

Date Submitted: 10/28/20 2:54 pm

Viewing: CYBERMG-MI : Cybersecurity Management and Information Assurance Minor

File: 247.12

Last approved: 06/26/17 9:25 am

Last edit: 10/28/20 2:54 pm

Changes proposed by: cecq8z

Catalog Pages Using this Program

[Business and Management Systems](#)

[Information Science and Technology](#)

Start Term

Fall 2021 ~~08/14/2017~~

Program Code

CYBERMG-MI

Department

Business and Information Technology

Title

Cybersecurity Management and Information Assurance Minor

Program Requirements and Description

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. Kristy Giacomelli-Feys

Approval Path

1. 08/29/20 11:15 am siauk: Approved for RINFSCTE Chair
2. 08/31/20 11:20 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 08/31/20 11:25 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 09/15/20 12:04 pm Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 10/07/20 10:09 am Marita Tibbetts (tibbettsmg): Rollback to Initiator
6. 10/19/20 3:56 pm siauk: Approved for RINFSCTE Chair

7. 10/19/20 4:32 pm Marita Tibbetts (tibbettsmg): Rollback to Initiator

8. 10/20/20 5:04 pm siauk: Approved for RINFSCTE Chair

9. 10/28/20 2:28 pm Marita Tibbetts (tibbettsmg): Rollback to Initiator

10. 10/28/20 4:04 pm siauk: Approved for RINFSCTE Chair

11. 10/29/20 8:27 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

12. 10/29/20 8:51 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

13. 11/25/20 7:46 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

14. 12/16/20 11:26 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

15. 12/16/20 12:36 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

History

1. Apr 7, 2017 by Barry Flachsbart (barryf)
2. Jun 26, 2017 by Kristy Giacomelli-Feys (kristyg)
3. Jun 26, 2017 by Crystal Wilson (wilsoncry)

Minor in Cybersecurity Management and Information Assurance

This minor requires the following 15 hours of coursework:

The following three courses are required:

BUS 5910	Privacy and Information Security Law	3
~~IS&T 4780~~	~~Human and Organizational Factors in Cybersecurity~~	~~3~~
IS&T 5780	**Course IS&T 5780 Not Found**	**3**
IS&T 3333	Data Networks and Information Security	3

Two of the following ~~three~~ courses must also be taken:

ERP 5240	Enterprise Application Development and Software Security	3
~~IS&T 4335~~	~~Fundamentals of Mobile Technology for Business~~	~~3~~
IS&T 3420	**Introduction to Data Science and Management**	**3**
IS&T 4641	Digital Commerce and the Internet of Things	3
BUS 5910	**Privacy and Information Security Law**	**3**

Justification for request

There is a data science element in information assurance. Update to reflect course renumbering.

Supporting Documents

Course Reviewer Comments

tibbettsmg (10/07/20 10:09 am): Rollback: rollback from CCC meeting. also change term to FS21.

tibbettsmg (10/19/20 4:31 pm): changed term to FS21. MT

tibbettsmg (10/19/20 4:32 pm): Rollback: 5780 is pending FS approval on 10/22, but you will need to attach approval documents and resubmit with IST 5641 CC. MT

tibbettsmg (10/28/20 2:28 pm): Rollback: rollback to remove 5641. MT

Key: 247

Program Change Request

Date Submitted: 10/07/20 12:13 pm

Viewing: E/T ECN-MI : E/T Economics Minor

File: 37.3

Last approved: 05/07/14 10:35 am

Last edit: 10/07/20 12:13 pm

Changes proposed by: davismc

Catalog Pages Using this Program

[Economics](#)

Start Term

Fall 2021 ~~08/01/2014~~

Program Code

E/T ECN-MI

Department

Economics

Title

E/T Economics Minor

Program Requirements and Description

In Workflow

1. **RECONOMI 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. 10/07/20 12:14 pm Michael Davis (davismc): Approved for RECONOMI Chair
2. 10/07/20 1:16 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 10/14/20 7:59 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 11/25/20 7:47 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 12/16/20 11:26 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

6. 12/16/20 12:36 pm
   Stephen Raper
   (sraper): Approved
   for Campus
   Curricula
   Committee Chair

History

1. May 7, 2014 by
   Lahne Black (lahne)
2. May 7, 2014 by
   Lahne Black (lahne)

Energy/Technology Minor

(15 hours)

Required courses:		
ECON 1100	Principles Of Microeconomics	3
ECON 1200	Principles Of Macroeconomics	3
ECON 2100	Intermediate Microeconomic Theory	3
And 6 hours from:		
~~ECON 4330~~	~~Course ECON 4330 Not Found~~	~~3~~
ECON 4300	**Research Methods and Applications in Economics and Business**	**3**
ECON 4430	Cost-Benefit Analysis	3
ECON 4440	Environmental And Natural Resource Economics	3
ECON 4540	**Energy Economics**	**3**
ECON 4130	**Network Economy**	**3**

Justification for request

Course 4330 doesn't exist and was a mistake in switching to four-digit courses. 4300 replaces 4330. Since this is an Energy minor, Energy Economics should be on the list of possible courses as well (4540). Network Economy is related to technology and should be available as an elective as well.

Supporting Documents

Course Reviewer Comments

Key: 37

Program Change Request

Date Submitted: 10/07/20 12:13 pm

Viewing: **IN ECN-MI : International Economics Minor**

File: 76.3

Last approved: 05/07/14 10:36 am

Last edit: 10/07/20 12:13 pm

Changes proposed by: davismc

Catalog Pages Using this Program
[Economics](#)

Start Term
Fall 2021 ~~08/01/2014~~
Program Code
IN ECN-MI
Department
Economics
Title
International Economics Minor

Program Requirements and Description

In Workflow

1. **RECONOMI 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. 10/07/20 12:14 pm Michael Davis (davismc): Approved for RECONOMI Chair
2. 10/07/20 12:20 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 10/14/20 8:00 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 11/25/20 7:48 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 12/16/20 11:26 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

6. 12/16/20 12:37 pm
Stephen Raper
(sraper): Approved
for Campus
Curricula
Committee Chair

History

1. May 7, 2014 by
Lahne Black (lahne)
2. May 7, 2014 by
Lahne Black (lahne)

International Economics Minor

(15 hours)

Required courses:		
ECON 1100	Principles Of Microeconomics	3
ECON 1200	Principles Of Macroeconomics	3
ECON 2200	Intermediate Macroeconomic Theory	3
And 6 hours from:		
ECON 4710	International Trade	3
ECON 4720	**International Finance**	**3**
ECON 4730	Economic Development	3
~~ECON 4350~~	~~Statistical Models in Actuarial Science~~	~~3~~

Justification for request

In the switch to four-digit courses Econ 4350 replaced the course that should have been on the list.

International Finance (4720) should be included in a minor in International Economics.

Supporting Documents

Course Reviewer Comments

Key: 76

Program Change Request

Date Submitted: 11/16/20 10:16 am

Viewing: **IS&T-MS** ~~IST-MS~~ : Info Science & Tech MS

File: 73.9

Last approved: 07/23/15 11:32 am

Last edit: 12/16/20 11:24 am

Changes proposed by: cecq8z

> Catalog Pages Using this Program
> [Information Science and Technology](#)

Start Term
Fall 2021 ~~08/17/2015~~
Program Code
IS&T-MS ~~IST-MS~~
Department
Business and Information Technology
Title
Info Science & Tech MS

Program Requirements and Description

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. Kristy Giacomelli-Feys

Approval Path

1. 11/16/20 10:31 am siauk: Approved for RINFSCTE Chair
2. 11/16/20 2:21 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 11/16/20 2:34 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 11/25/20 7:48 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 12/16/20 11:24 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda
6. 12/16/20 12:37 pm Stephen Raper

(sraper): Approved for Campus Curricula Committee Chair

History

1. Apr 28, 2014 by Barry Flachsbart (barryf)
2. Jun 16, 2015 by pantaleoa
3. Jul 23, 2015 by pantaleoa

Degree Requirements

M.S. with thesis: The M.S. degree with thesis requires the completion of 24 hours of graduate course work (5000-level or above), 6 hours of research, and the successful completion and defense of a research thesis.

M.S. without thesis: The M.S. degree without thesis requires the completion of 30 hours of graduate course work (5000-level and above). Courses below the 5000-level will not count toward the M.S. degree, even if they are taken to fulfill prerequisites.

The following core courses are required of all M.S. students in information science and technology. These courses are designated to ensure that all IS&T masters students study the four information systems perspectives of networks and web design, human perception, application implementation, and organizational systems.

~~IS&T 5251~~	~~Technological Innovation Management and Leadership~~
IS&T 5885	Human-Computer Interaction (IST 6251 – Technological Innovation, Entrepreneurship, and Economic Development)
IST 6251 – Technological Innovation, Entrepreneurship, and Economic Development	
IS&T 6261	Advanced Information Systems Project Management
IS&T 6336	Foundations of Internet Computing

Justification for request
This new course, IST 6251, will be a more advanced version of IST 5251 that is particularly appropriate as a 6000-level class, particularly for MS IST students. IST 5251 will be restructured to mainly focus on undergraduate students.
Supporting Documents
Course Reviewer Comments
tibbettsmg (11/16/20 2:21 pm): updated term to FS21. mt
tibbettsmg (12/16/20 11:24 am): updated program code to "IS&T" mt

Key: 73

Program Change Request

Date Submitted: 11/09/20 4:03 pm

Viewing: **PRE-MED-MI : Pre-Medicine Minor**

File: 123.8

Last approved: 04/28/20 9:45 am

Last edit: 11/09/20 4:03 pm

Changes proposed by: shannonk

Catalog Pages Using this Program
[Prehealth Professions](#)

Start Term
Fall **2021** ~~2020~~
Program Code
PRE-MED-MI
Department
College of Arts & Sciences
Title
Pre-Medicine Minor

Program Requirements and Description

In Workflow

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

Approval Path

1. 11/10/20 6:34 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
2. 11/25/20 7:49 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
3. 12/16/20 11:26 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda
4. 12/16/20 12:38 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

History

1. Mar 31, 2014 by pantaleoa
2. Mar 31, 2014 by pantaleoa

Premedicine Minor

It is recommended that students seeking the Pre-Medicine minor declare their intentions as soon as possible. Students completing the Pre-Medicine minor curriculum in addition to their BA/BS curriculum will have completed all requirements for admission to most Medical, Dental, Veterinary or other health profession programs. However, it is important to consult with a member of the Pre-Health Professions Advisory Committee to ensure you are completing the necessary coursework for your desired profession. The Pre-Medicine minor is not intended for a student majoring in Chemistry, Biological Sciences or Chemical and Biochemical Engineering which already offer a Pre-Medicine approved curriculum. Required courses for the Pre-Medicine minor are:

BIO SCI 1213 & BIO SCI 1219	Principles of Biology and General Biology Lab	4
or BIO SCI 1113 & BIO SCI 1219	General Biology and General Biology Lab	
BIO SCI 2213 & BIO SCI 2219	Cell Biology and Cell Biology Laboratory	4
CHEM 1310 & CHEM 1319 & CHEM 1320 & CHEM 1100	General Chemistry I and General Chemistry Laboratory and General Chemistry II and Introduction To Laboratory Safety & Hazardous Materials	9
CHEM 2210 & CHEM 2219 & CHEM 2220 & CHEM 2229	Organic Chemistry I and Organic Chemistry I Lab and Organic Chemistry II and Organic Chemistry II Lab	8
PHYSICS 1145	College Physics I	4
or PHYSICS 1135	Engineering Physics I	
PHYSICS 2145	College Physics II	4
or PHYSICS 2135	Engineering Physics II	
Mathematics two semesters to include:		
MATH 1208	Calculus With Analytic Geometry I	
or MATH 1212	Business Calculus	
or MATH 1214	Calculus For Engineers I	
One of the following courses (taking all four courses is strongly encouraged):		
BIO SCI 2223	General Genetics	
BIO SCI 3333	Human Anatomy and Physiology I	
BIO SCI 3343	Human Anatomy and Physiology II	
CHEM 4610	General Biochemistry	

| PREMED 3010 | Communication Workshop for the Pre-Health Student (Suggested but not required) | 1 |

Justification for request

Bio Sci 1219 changed from 2 hours to 1

Supporting Documents

Course Reviewer Comments

Key: 123

Program Change Request

Date Submitted: 11/10/20 2:00 pm

Viewing: **THEATRE-MI : Theatre Minor**

File: 136.1

Last edit: 11/10/20 2:00 pm

Changes proposed by: karmannc

Catalog Pages Using this Program

Theatre

Start Term
Fall 2021
Program Code
THEATRE-MI
Department
Arts, Languages, & Philosophy
Title
Theatre Minor

Program Requirements and 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. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. Kristy Giacomelli-Feys

Approval Path

1. 04/14/20 10:41 am Audra Merfeld-Langston (audram): Approved for RPHILOSO Chair
2. 04/24/20 9:18 am Kristy Giacomelli-Feys (kristyg): Approved for CCC Secretary
3. 04/24/20 10:15 am Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
4. 04/28/20 9:17 am Kristy Giacomelli-Feys (kristyg): Approved for Pending CCC Agenda post
5. 05/06/20 10:32 am Kristy Giacomelli-Feys (kristyg): Rollback to Arts & Humanities DSCC

Chair for CCC
Meeting Agenda

6. 05/06/20 4:28 pm
Petra Dewitt
(dewittp): Rollback
to RPHILOSO Chair
for Arts &
Humanities DSCC
Chair

7. 05/06/20 5:54 pm
Audra Merfeld-
Langston (audram):
Rollback to Initiator

8. 09/24/20 11:37 am
Audra Merfeld-
Langston (audram):
Approved for
RPHILOSO Chair

9. 09/24/20 11:49 am
Marita Tibbetts
(tibbettsmg):
Approved for CCC
Secretary

10. 09/24/20 2:11 pm
Petra Dewitt
(dewittp): Approved
for Arts &
Humanities DSCC
Chair

11. 10/13/20 8:25 am
Marita Tibbetts
(tibbettsmg):
Approved for
Pending CCC
Agenda post

12. 10/28/20 10:07 am
Marita Tibbetts
(tibbettsmg):
Rollback to Initiator

13. 11/11/20 11:43 am
Audra Merfeld-
Langston (audram):
Approved for
RPHILOSO Chair

14. 11/12/20 8:11 am
Marita Tibbetts
(tibbettsmg):
Approved for CCC
Secretary

15. 11/12/20 8:22 am
Petra Dewitt
(dewittp): Approved
for Arts &

Humanities DSCC
Chair
16. 11/25/20 7:50 am
Marita Tibbetts
(tibbettsmg):
Approved for
Pending CCC
Agenda post
17. 12/16/20 11:26 am
Marita Tibbetts
(tibbettsmg):
Approved for CCC
Meeting Agenda
18. 12/16/20 12:37 pm
Stephen Raper
(sraper): Approved
for Campus
Curricula
Committee Chair

Theatre Minor Curriculum

A minor in Theatre requires a minimum of **15** ~~16~~ hours comprised of the following courses:

Required Courses (6 credits):

~~THEATRE 1190~~	~~Theatre via Video~~	~~3~~
~~THEATRE 2141~~	~~Acting I~~	~~3~~
~~THEATRE 1142~~	~~Stage Productions, Performers~~	~~1~~
~~or THEATRE 3220~~	~~Theatre Ensemble~~	
~~THEATRE 1143~~	~~Stage Productions, Technicians~~	~~1~~
~~THEATRE 2143~~	~~Stagecraft~~	~~3~~

THEATRE 1150	**Course THEATRE 1150 Not Found**	
THEATRE 2143	**Stagecraft**	**3**

In addition to the courses listed above, **students are** ~~the student is~~ required to choose **3** ~~a concentration and complete enough hours from one~~ of the **courses below (9 credits):** ~~following concentration areas to meet the minimum 16 hours.~~

THEATRE 2141	**Acting I**	**3**
THEATRE 3241	**Acting II**	**3**
THEATRE 3243	**Entertainment Design**	**3**
THEATRE 4341	**Directing**	**3**

Acting/Directing

THEATRE 3241	Acting II	3
THEATRE 4341	Directing	3
THEATRE 3242	Course THEATRE 3242 Not Found	3
or MUSIC 1111	Individual Music Instruction I	

Technical Theatre

THEATRE 3242	Course THEATRE 3242 Not Found	3
THEATRE 3241	Acting II	3
or THEATRE 4341	Directing	

Justification for request

The curriculum for the introductory theatre course needs serious updating, so we are getting rid of Theatre 1190: Theatre via Video and replacing it with Theatre 1150: Theatre for Social Change, which would be a required course for the Theatre Minor. This would put S&T in line with other universities around the country with theatre curriculum offered to non-majors.

The previous Theatre minor requirements were confusing to students. There were two separate concentration areas that overlapped too generally and offered no extreme differences. We want the Theatre minor to be in line with other minors in the department in structure and aesthetic, so we are streamlining the requirements and making it clearer to the students. We believe this small structure change will have positive effects and will be clearer to students wanting to explore theatre during their time at Missouri S&T.

Supporting Documents

Course Reviewer Comments

kristyg (05/06/20 10:32 am): Rollback: Rolla back for course changes.

dewittp (05/06/20 4:28 pm): Rollback: Address the 2201, 3001, and 4001 issue.

audram (05/06/20 5:54 pm): Rollback: A minor can only contain courses with permanent numbers. Faculty needs to revise.

tibbettsmg (10/28/20 10:07 am): changed eff. term to FS21. MT

tibbettsmg (10/28/20 10:07 am): Rollback: Rollback for administrative changes. Content needs to be formatted in course/text boxes consistent with DC form format. DSCC chair to follow up with addt'l details. MT

Key: 136

Program Change Request

Date Submitted: 10/11/20 7:52 am

Viewing: **AI-CT : AI, Mach Lrn & Auto for Bus CT**

File: 292.6

Last approved: 07/01/20 1:37 pm

Last edit: 10/19/20 4:04 pm

Changes proposed by: cecq8z

Catalog Pages Using this Program
[Information Science and Technology](#)

Start Term
Fall **2021** ~~2020~~
Program Code
AI-CT
Department
Business and Information Technology
Title
AI, Mach Lrn & Auto for Bus CT

Program Requirements and Description

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. Kristy Giacomelli-Feys

Approval Path

1. 08/29/20 11:11 am siauk: Approved for RINFSCTE Chair
2. 08/31/20 11:17 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 08/31/20 11:24 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 09/15/20 11:54 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 10/07/20 10:05 am Marita Tibbetts (tibbettsmg): Rollback to Initiator
6. 10/19/20 3:47 pm siauk: Approved for RINFSCTE Chair

7. 10/19/20 4:04 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
8. 10/29/20 8:51 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
9. 11/25/20 7:27 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
10. 12/16/20 11:33 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda
11. 12/16/20 12:35 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

History

1. Jun 12, 2019 by Brittany Parnell (ershenb)
2. Jul 1, 2020 by Cecil Eng Huang Chua (cchua)

AI, Machine Learning and Automation in Business

Artificial Intelligence is a disruptive technology in the business realm with transformational impact. From detecting malware and preventing money laundering to automating insurance claims and optimizing inventory and improving product recommendations and more, AI will continue to necessitate changes in core business processes and models. Within the past few years, machine learning, while not fully tapped in the business sphere, has become more effective and widely utilized. Tomorrow's leaders and managers will need to integrate machine learning where appropriate, incorporating its capabilities with those of humans. The design and implementation of new combinations of technologies with human skills to meet customers' needs will require critical thinking skills, creativity, and project planning.

Required Core Courses:	
BUS 5730	**Machine Learning and Artificial Intelligence for Business**

IS&T 5535	**Machine Learning Algorithms and Applications**	
Elective courses (choose two):		
IS&T 5420	**Business Analytics and Data Science**	
IS&T 5520	**Data Science and Machine Learning with Python**	
IS&T 6443	**Information Retrieval and Analysis**	
IS&T 5445	**Course IS&T 5445 Not Found**	
BUS 6723	**Artificial Intelligence, Robotics, and Information Systems Management**	
ERP 6220	**Data Modeling & Visualization Prototyping for Enterprise Decision Dashboards**	

~~A student admitted to this graduate certificate must complete four courses: Required Courses: BUS 5730 Machine Learning and Artificial Intelligence for Business IS&T 5535 Machine Learning Algorithms and Applications Elective Courses (choose two): BUS 6723 Artificial Intelligence, Robotics, and Information Systems IS&T 5520 Data Science and Machine Learning with Python IS&T 6443 Information Retrieval and Analysis IS&T 6445 Database Marketing IST6450: Information Visualization ERP5410: Use of Business Intelligence~~

Justification for request

Added data science courses to the elective mix.

Supporting Documents

Course Reviewer Comments

tibbettsmg (10/07/20 10:05 am): changed term to FS21. MT

tibbettsmg (10/07/20 10:05 am): Rollback: rollback from CCC meeting.

tibbettsmg (10/19/20 4:04 pm): IST 5445 approval is pending FS meeting on 10/22.-MT

Key: 292

Program Change Request

Date Submitted: 11/11/20 10:25 am

Viewing: **AUTOEN-CTU : Undergraduate Certificate in Automation Engineering**

File: 254.10

Last approved: 07/01/20 1:38 pm

Last edit: 11/11/20 10:25 am

Changes proposed by: kte

Catalog Pages Using this Program
[Electrical Engineering](#)

Start Term
Fall **2021** ~~2020~~
Program Code
AUTOEN-CTU
Department
Electrical and Computer Engineering
Title
Undergraduate Certificate in Automation Engineering

Program Requirements and 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. Kristy Giacomelli-Feys

Approval Path

1. 11/11/20 12:52 am Watkins (watkins): Approved for RELECENG Chair
2. 11/11/20 8:21 am Marita Tibbetts (tibbettsmg): Rollback to Initiator
3. 11/11/20 10:26 am Watkins (watkins): Approved for RELECENG Chair
4. 11/11/20 11:42 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
5. 11/20/20 12:30 pm Stephen Raper (sraper): Approved for Engineering DSCC Chair
6. 11/25/20 7:28 am Marita Tibbetts (tibbettsmg): Approved for

Pending CCC Agenda post

7. 12/16/20 11:33 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda
8. 12/16/20 12:36 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

History

1. Jun 18, 2018 by Kelvin Erickson (kte)
2. Jul 26, 2018 by Brittany Parnell (ershenb)
3. Jul 26, 2018 by Brittany Parnell (ershenb)
4. Jul 26, 2018 by Brittany Parnell (ershenb)
5. Jun 12, 2019 by Brittany Parnell (ershenb)
6. Jul 1, 2020 by Kelvin Erickson (kte)

Automation Engineering Certificate

An undergraduate certificate in Automation Engineering will require the following:

Required courses:		
ELEC ENG 3340	Basic Programmable Logic Controllers (must pass with a "C" or better)	3
Pass one of the following courses with a "C" or better:		
ELEC ENG 3320	Control Systems	3
MECH ENG 4479	Automatic Control Of Dynamic Systems	3
CHEM ENG 4110	Chemical Engineering Process Dynamics And Control	3
Pass 6 additional hours of coursework from the following list: (A "C" or better is required for all 6 hours)		
CHEM ENG 4140	Chemical Process Safety	3
CHEM ENG 4241	Process Safety in the Chemical and Biochemical Industries	3

CHEM ENG 4310	Interdisciplinary Problems In Manufacturing Automation	3
or MECH ENG 5644	Interdisciplinary Problems In Manufacturing Automation	
CHEM ENG 5190	Plantwide Process Control	3
or ELEC ENG 5350	Plantwide Process Control	
CHEM ENG 5355	**Course CHEM ENG 5355 Not Found**	
or **ELEC ENG 5355**	**Course ELEC ENG 5355 Not Found**	
ELEC ENG 4380	Practicum in Automation Engineering (no more than one can be applied to the Automation Engineering Minor)	3
ELEC ENG 5340	Advanced PLC	3
ELEC ENG 5345	PLC Motion Control	3
ELEC ENG 5870	Mechatronics	3
or MECH ENG 5478	Mechatronics	
MECH ENG 5420	Signal Processing for Instrumentation and Control	3
MECH ENG 5449	Robotic Manipulators and Mechanisms	3
MECH ENG 5655	Manufacturing Equipment Automation	3

Justification for request

Add new course to list of courses for "Pass 6 additional hours of coursework..."

Chem Eng 5355 Process Control System Safety, Security and Alarms

or Elec Eng 5355 Process Control System Safety, Security and Alarms

Supporting Documents

UG Certificate Automation Engr 2021.pdf

Course Reviewer Comments

tibbettsmg (11/11/20 8:21 am): Rollback: The changes proposed must be made within the format text boxes. MT

Key: 254

Program Change Request

Date Submitted: 11/11/20 10:28 am

Viewing: AUTOENG-CT : Automation Eng & PLC CT

File: 281.2

Last approved: 06/12/19 10:10 am

Last edit: 11/11/20 11:47 am

Changes proposed by: kte

> Catalog Pages Using this Program
> [Electrical Engineering](#)

Start Term
Fall **2021** ~~2019~~
Program Code
AUTOENG-CT
Department
Electrical and Computer Engineering
Title
Automation Eng & PLC CT

Program Requirements and 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. Kristy Giacomelli-Feys

Approval Path

1. 11/11/20 12:53 am Watkins (watkins): Approved for RELECENG Chair
2. 11/11/20 8:27 am Marita Tibbetts (tibbettsmg): Rollback to Initiator
3. 11/11/20 10:30 am Watkins (watkins): Approved for RELECENG Chair
4. 11/11/20 11:48 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
5. 11/20/20 12:30 pm Stephen Raper (sraper): Approved for Engineering DSCC Chair
6. 11/25/20 7:29 am Marita Tibbetts (tibbettsmg): Approved for

7. 12/16/20 11:33 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda
8. 12/16/20 12:36 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

History

1. Jun 12, 2019 by Brittany Parnell (ershenb)

Automation Engineering and PLC

This graduate certificate program is designed to provide specialized graduate level education in the area of automation engineering and PLC.

Admission

The automation engineering and PLC graduate certificate program is open to all persons holding a B.S. degree in any field of engineering from an ABET accredited undergraduate program or a degree in a closely related technical field such as physics or mathematics. The minimum overall GPA in the B.S. degree program should be at least 2.5.

Once admitted to the program, the student must take four designated courses as given below. In order to receive a graduate certificate, the student must have an average graduate grade point average of 3.0 or better in the certificate courses taken.

Students admitted to the certificate program will have non-degree graduate status. If the four-course sequence is completed with a grade of B or better in each of the courses taken, they will be admitted to the M.S. program in chemical engineering, electrical engineering, or mechanical engineering, provided that all other program prerequisites and admission requirements are met. The certificate courses taken by students admitted to the M.S. program will count towards their master's degrees. Students who do not have all of the prerequisite courses necessary to take the courses 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.

Once admitted to the program, a student will be given three years to complete the program so long as he/she maintains a B average in the courses taken.

Curriculum

Students enrolled in this graduate certificate program will take two required courses and two elective courses. Alternative courses may be substituted with the departmental approval dependent on the availability of the courses listed below:

Required courses:	
CHEM ENG 5190/ELEC ENG 5350	Plantwide Process Control

ELEC ENG 5340	Advanced PLC
Choose two of the following:	
~~CHEM ENG 5140~~	~~Course CHEM ENG 5140 Not Found~~
CHEM ENG 5355	**Course CHEM ENG 5355 Not Found**
or **ELEC ENG 5355**	**Course ELEC ENG 5355 Not Found**
ELEC ENG 5345	PLC Motion Control
ELEC ENG 5870/MECH ENG 5478	Mechatronics
MECH ENG 5449	Robotic Manipulators and Mechanisms
MECH ENG 5655	Manufacturing Equipment Automation

Justification for request

Add course to "Choose two of the following:"

CHEM ENG 5355/ELEC ENG 5355 Process Control System Safety, Security and Alarms

This is a proposed new course.

Delete CHEM ENG 5140 - no longer in catalog

Supporting Documents

Grad Certificate Automation Engr and PLC 2021.pdf

Course Reviewer Comments

tibbettsmg (11/11/20 8:27 am): Rollback: Proposed changes will need to be made within the course list/text boxes. MT

tibbettsmg (11/11/20 11:43 am): updated term to FS21.mt

tibbettsmg (11/11/20 11:47 am): fixed formatting; listed new courses under "Choose two of the following" mt

Key: 281

Program Change Request

Date Submitted: 08/27/20 8:46 am

Viewing: **DATA WR-CT : Business Intelligence CT**

File: 294.2

Last approved: 06/12/19 11:55 am

Last edit: 11/16/20 2:02 pm

Changes proposed by: cecq8z

Catalog Pages Using this Program
Information Science and Technology

Start Term
Fall **2021** ~~2019~~
Program Code
DATA WR-CT
Department
Business and Information Technology
Title
Business Intelligence CT

Program Requirements and Description

In Workflow

1. **RBUSADMN 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. 11/16/20 10:29 am siauk: Approved for RBUSADMN Chair
2. 11/16/20 2:02 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 11/16/20 2:34 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 11/25/20 7:30 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 12/16/20 11:33 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda
6. 12/16/20 12:36 pm Stephen Raper

History

1. Jun 12, 2019 by Brittany Parnell (ershenb)

Business Intelligence

Interest in business intelligence has been a recent strong theme among employers. Medium and large-sized businesses are especially interested. In order to make appropriate decisions, upper-level administration of an organization needs to draw data together from different systems in order to get a unified picture of the status and performance of an organization and present it in helpful ways. Examples include the development of organizational scorecards, dashboards, and other tools that provide a picture of how an organization is performing. People capable of creating and maintaining such information are needed.

This graduate certificate focuses on the technologies that allow an organization to make effective business decisions based on operational data pulled together from many different sources inside and organization. The target audience consists of any individual who would manage any type of IT professionals, database administrators, business analysts, and any person who would need to understand the technologies and their capabilities.

A student admitted to this graduate certificate must complete four courses:

Required core courses:	
ERP 5410	Use of Business Intelligence
IS&T 6444/ERP 6444	Essentials of Data Warehouses
Two courses from the following list:	
ERP 5110	Enterprise Resource Planning Systems Design and Implementation
ERP 5210	Performance Dashboard, Scorecard and Data Visualization
ERP 6610	Advanced Customer Relationship Management in ERP Environment
ERP 6220	Data Modeling & Visualization Prototyping for Enterprise Decision Dashboards
IS&T 6443	Information Retrieval and Analysis
~~IS&T 6445~~	~~Database Marketing~~
IS&T 5445	**Course IS&T 5445 Not Found**

Justification for request
Course number change
Supporting Documents
Course Reviewer Comments
tibbettsmg (11/16/20 2:02 pm): updated term to FS21. mt

Key: 294

Program Change Request

Date Submitted: 08/27/20 8:48 am

Viewing: **DSCMGMT-CT : Digital Supply Chain Mgmt CT**

File: 297.2

Last approved: 06/12/19 12:07 pm

Last edit: 11/16/20 2:03 pm

Changes proposed by: cecq8z

Catalog Pages Using this Program
[Information Science and Technology](#)

Start Term
Fall **2021** ~~2019~~
Program Code
DSCMGMT-CT
Department
Business and Information Technology
Title
Digital Supply Chain Mgmt CT

Program Requirements and Description

In Workflow

1. **RBUSADMN 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. 11/16/20 10:29 am siauk: Approved for RBUSADMN Chair
2. 11/16/20 2:03 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 11/16/20 2:34 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 11/25/20 7:30 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 12/16/20 11:35 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda
6. 12/16/20 12:36 pm Stephen Raper

History

1. Jun 12, 2019 by Brittany Parnell (ershenb)

Digital Supply Chain Management

Success in today's marketplace requires that organizations deliver products and services that provide easily identified value for their customers. This certificate draws on strengths within two departments to integrate source (strategic procurement and supply management), production (manufacturing and service operations), and delivery processes (demand fulfillment), with a focus on the use of information technologies as the critical enabler of supply chain efficiencies and responsiveness.

The certificate is designed to give students the tools and ideas that help shape and define the various components of value creation. Students can gain knowledge and skills in the full spectrum of supply chain activities: supplier relationships, purchasing management, operations and inventory management, logistics and transportation, quality management, and information technology.

A student admitted to this graduate certificate must complete four courses:

Required core courses:	
ERP 5110	Enterprise Resource Planning Systems Design and Implementation
ERP 5310	Supply Chain Management Systems in an ERP Environment
One course from the following list:	
MECH ENG 5708	Rapid Product Design And Optimization
ENG MGT 5614	**Supply Chain Management Systems**
BUS 6425	Supply Chain and Project Management
One course from the following list:	
ERP 5410	Use of Business Intelligence
ERP 6120	Enterprise Resource Planning: Systems Config and Integration
ERP 6610	Advanced Customer Relationship Management in ERP Environment
MECH ENG 5656	Design For Manufacture
MECH ENG 5757	Integrated Product And Process Design
MECH ENG 5760/AERO ENG 5760	Probabilistic Engineering Design
MECH ENG 5763	Computer Aided Design: Theory and Practice
BUS 5360	**Business Operations**

Justification for request

Adding relevant operations courses.

Supporting Documents

Course Reviewer Comments

tibbettsmg (11/16/20 2:03 pm): updated term to FS21. mt

Key: 297

Course Reviewer Comments

tibbettsmg (11/16/20 2:03 pm): updated term to FS21. mt

Program Change Request

Date Submitted: 10/28/20 10:07 am

Viewing: **E&S COM-CT : Elec & Social Commerce CT**

File: 298.2

Last approved: 06/12/19 12:17 pm

Last edit: 10/28/20 10:07 am

Changes proposed by: cecq8z

Catalog Pages Using this Program
[Information Science and Technology](#)

Start Term
Fall **2021** ~~2019~~
Program Code
E&S COM-CT
Department
Business and Information Technology
Title
Elec & Social Commerce CT

Program Requirements and Description

Approval Path

1. 08/29/20 11:18 am siauk: Approved for RINFSCTE Chair
2. 08/31/20 12:03 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 08/31/20 12:06 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 09/15/20 12:07 pm Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
5. 10/07/20 10:12 am Marita Tibbetts (tibbettsmg): Rollback to Initiator
6. 10/19/20 3:56 pm siauk: Approved for RINFSCTE Chair

7. 10/19/20 4:35 pm Marita Tibbetts (tibbettsmg): Rollback to Initiator

8. 10/20/20 5:05 pm siauk: Approved for RINFSCTE Chair

9. 10/21/20 9:52 am Marita Tibbetts (tibbettsmg): Rollback to Initiator

10. 10/28/20 4:04 pm siauk: Approved for RINFSCTE Chair

11. 10/29/20 8:39 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

12. 10/29/20 8:51 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

13. 11/25/20 7:31 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

14. 12/16/20 11:36 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

15. 12/16/20 12:36 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

History

1. Jun 12, 2019 by Brittany Parnell (ershenb)

Electronic and Social Commerce

Social commerce is just one sub-set of e-commerce, however it is growing rapidly. The department of business and information technology (BIT) has leveraged its' strengths in both business and technology for this program, which is designed to create successful students by developing skills in technological business practices that will provide opportunities for succeeding in today's fast paced world. To that end, the program focuses on the following competencies:

- Management concepts applied to IT
- Management concepts applied to support of electronic commerce
- Use of business processes in IT integration
- Competitive advantage through IT
- Electronic commerce through collaborative shopping

A student admitted to this graduate certificate must complete four courses:

Required core courses:	
IS&T 6641	Advanced Digital Commerce and the Internet of Things
Core Courses (choose one or two):	
IS&T 5251	Technological Innovation Management and Leadership
BUS 6723	Artificial Intelligence, Robotics, and Information Systems Management
Elective courses (choose one or two):	
IS&T 5168/PHILOS 4368	Law and Ethics in E-Commerce
IS&T 5335	**Course IS&T 5335 Not Found**
IS&T 5445	**Course IS&T 5445 Not Found**
IS&T 5652	Advanced Web Development
IS&T 5885	Human-Computer Interaction
IS&T 5886	Prototyping Human-Computer Interactions
~~IS&T 6335~~	~~Mobile Technology for Business~~
~~IS&T 6445~~	~~Database Marketing~~
IS&T 6680	Advanced Web and New Media Studies
MKT 5310	Digital Marketing and Promotions
MKT 6580	Advanced Marketing Strategy

Justification for request

Course renumbering

Supporting Documents

Course Reviewer Comments

tibbettsmg (10/07/20 10:12 am): Rollback: rollback from CCC meeting. also change term to FS21.

tibbettsmg (10/19/20 4:34 pm): changed term to FS 21. MT

tibbettsmg (10/19/20 4:35 pm): Rollback: Please resubmit with approval documents and at the same time as 5641 and 6251 CC forms. MT

tibbettsmg (10/21/20 9:52 am): Rollback: We still need the approval documents attached and the 6251 CC form. Rolling back.

Key: 298

Program Change Request

Date Submitted: 11/17/20 9:30 am

Viewing: ENT&TEC-CT : Entrepreneur & Tech Innovat CT

File: 288.2

Last approved: 06/12/19 1:16 pm

Last edit: 11/17/20 9:30 am

Changes proposed by: cecq8z

Catalog Pages Using this Program
[Business Administration](#)

Start Term
Fall **2021** ~~2019~~
Program Code
ENT&TEC-CT
Department
Business and Information Technology
Title
Entrepreneur & Tech Innovat CT

Program Requirements and Description

In Workflow
1. **RBUSADMN 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. 11/16/20 10:29 am siauk: Approved for RBUSADMN Chair
2. 11/16/20 2:11 pm Marita Tibbetts (tibbettsmg): Rollback to Initiator
3. 11/18/20 1:08 am siauk: Approved for RBUSADMN Chair
4. 11/18/20 6:32 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
5. 11/18/20 7:09 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
6. 11/25/20 7:32 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

7. 12/16/20 11:36 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Meeting Agenda
8. 12/16/20 12:37 pm
   Stephen Raper
   (sraper): Approved
   for Campus
   Curricula
   Committee Chair

History

1. Jun 12, 2019 by
   Brittany Parnell
   (ershenb)

Entrepreneurship and Technological Innovation

Change and growth in Missouri and America require the training, nourishing, and flourishing of entrepreneurs. Many college students, however, do not yet recognize the entrepreneurial spirit in themselves. Recent entrepreneurship research indicates that many of the skills and much of the knowledge of successful entrepreneurs can be developed and taught in the classroom. The department of business and information technology has created this certificate to spark the entrepreneurial spirit in the students of Missouri S&T, and provide them with a solid foundation on which to build.

To that end, the program focuses on the following competencies:

- Recognizing opportunity
- Assessing opportunity
- Planning under uncertainty
- Fostering innovations
- Mastering creativity
- Building and managing networks
- Leveraging resources
- Mitigating and managing risk
- Focus and adaptability
- Design thinking
- Implementing new ideas

A student admitted to this graduate certificate must complete four courses:

Required core courses:	
BUS 5980	Business Models for Entrepreneurship and Innovation
BUS 6622	**International Marketing**
Two courses from the following list:	
IS&T 5168	**Law and Ethics in E-Commerce**
MKT 5310	Digital Marketing and Promotions
BUS 5580	Strategic Management

~~BUS 6150~~	~~Advanced Customer Focus and Satisfaction~~
~~IS&T 5251~~	~~Technological Innovation Management and Leadership~~
IS&T 5886	Prototyping Human-Computer Interactions
~~IS&T 6335~~	~~Mobile Technology for Business~~
BUS 5150	**Course BUS 5150 Not Found**
IS&T 6251	**Course IS&T 6251 Not Found**
IS&T 6654	Advanced Web and Digital Media Development
IS&T 5335	**Course IS&T 5335 Not Found**

Justification for request

Course renumbering.

Supporting Documents

Course Reviewer Comments

tibbettsmg (11/16/20 2:09 pm): term updated to FS21. MT

tibbettsmg (11/16/20 2:11 pm): Rollback: Bus 5150 change has not been submitted. Either submit CT with Bus 4150 as requirement or submit request to change Bus 4150 to 5150 at the same time as this CT. MT

Key: 288

Program Change Request

New Program Proposal

Date Submitted: 11/09/20 11:41 am

Viewing: PROPOSED : Advanced Materials for Sustainable Infrastructure CT

File: 369

Last edit: 11/09/20 11:41 am

Changes proposed by: seelyj

Start Term
Fall 2021
Program Code
PROPOSED
Department
Civil, Architectural, and Environmental Engineering
Title
Advanced Materials for Sustainable Infrastructure CT

Program Requirements and 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. Kristy Giacomelli-Feys

Approval Path

1. 10/01/20 2:44 pm Marita Tibbetts (tibbettsmg): Rollback to Initiator
2. 10/01/20 3:22 pm Joel Burken (burken): Approved for RCIVILEN Chair
3. 10/02/20 6:01 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 8:28 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
6. 10/28/20 10:05 am Marita Tibbetts

(tibbettsmg): Rollback to Initiator

7. 11/09/20 11:52 am Joel Burken (burken): Approved for RCIVILEN Chair

8. 11/10/20 6:22 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

9. 11/20/20 12:31 pm Stephen Raper (sraper): Approved for Engineering DSCC Chair

10. 11/25/20 7:33 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

11. 12/16/20 11:36 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

12. 12/16/20 12:38 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

Advanced Materials for Sustainable Infrastructure Certificate

(Offered in Civil Engineering Discipline)

Choose four courses with a minimum of two courses from the first group of courses (advanced construction materials) and remaining courses from the second group of courses (electives).

I. Advanced Construction Material Courses (Choose two courses):

CIV ENG 5112	Bituminous Materials	3
CIV ENG 5113	Composition And Properties Of Concrete	3
CIV ENG 6801	Advanced Concrete Science and Technology	3

II. Related Topics (Choose two courses):

ARCH ENG 5448	Green Engineering: Analysis of Constructed Facilities	3
CIV ENG 5118	Smart Materials And Sensors	3
CIV ENG 5231	Infrastructure Strengthening with Composites	3

MECH ENG 5282	Introduction to Composite Materials & Structures	3

Justification for request

The purpose of the certificate is to provide graduate students in who are interested in careers that are based on sustainable building and transportation infrastructure materials with a formal recognition of accomplishment in this area. The certificate will help students to enter the CE graduate programs and to make students more marketable in this job sector. The students targeted for this certificate are primarily off-campus graduate students and be a pathway for the CE MS program within CArEE for students completing the certificate.

Supporting Documents

Advanced Materials Sustainable Infrastructure CT.pdf

MST PC July 2020.pdf

Course Reviewer Comments

tibbettsmg (10/01/20 2:44 pm): Rollback: to reattach documents

tibbettsmg (10/28/20 10:05 am): Rollback: Rollback for administrative changes. Content needs to be formatted in course/text boxes consistent with DC form format. DSCC chair to follow up with addt'l details. MT

Key: 369

Program Change Request

New Program Proposal

Date Submitted: 11/09/20 11:26 am

Viewing: PROPOSED : Building Systems Engineering CT

File: 370

Last edit: 11/09/20 11:26 am

Changes proposed by: seelyj

Start Term
Fall 2021
Program Code
PROPOSED
Department
Civil, Architectural, and Environmental Engineering
Title
Building Systems Engineering CT

Program Requirements and 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. Kristy Giacomelli-Feys

Approval Path

1. 10/01/20 2:44 pm Marita Tibbetts (tibbettsmg): Rollback to Initiator
2. 10/01/20 3:22 pm Joel Burken (burken): Approved for RCIVILEN Chair
3. 10/02/20 6:02 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 8:28 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
6. 10/28/20 10:05 am Marita Tibbetts

(tibbettsmg): Rollback to Initiator

7. 11/09/20 11:28 am Joel Burken (burken): Approved for RCIVILEN Chair

8. 11/10/20 6:23 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

9. 11/20/20 12:31 pm Stephen Raper (sraper): Approved for Engineering DSCC Chair

10. 11/25/20 7:34 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

11. 12/16/20 11:36 am Marita Tibbetts (tibbettsmg): Approved for CCC Meeting Agenda

12. 12/16/20 12:38 pm Stephen Raper (sraper): Approved for Campus Curricula Committee Chair

Building Systems Engineering CT

(Offered in Civil Engineering discipline)

ENVIRONMENTAL BUILDING SYSTEM COURSES (Choose TWO courses from the following):

ARCH ENG 4800	Principles of HVAC I	3
ARCH ENG 4850	Building Electrical Systems	3
ARCH ENG 5820	Building Lighting Systems	3

CONSTRUCTION BUILDING SYSTEM COURSES (Choose ONE courses from the following):

ARCH ENG 5445	Construction Methods	3
ARCH ENG 5449	Engineering and Construction Contract Specifications	3
CIV ENG 6442	Construction Administration, Planning and Control	3
CIV ENG 6445	Advanced Construction Engineering	3

BUILDING MANAGEMENT COURSES (Choose ONE courses from the following):

ENG MGT 5111	Management for Engineers and Scientists	3
ENG MGT 5210	Economic Decision Analysis	3
ENG MGT 5320	Project Management	3
SYS ENG 5101	System Engineering and Analysis	3

Justification for request

The purpose of the certificate is to provide graduate students in who are interested in careers that are based on advanced building systems design and construction with a formal recognition of accomplishment in this area. The certificate will help students to enter the CE graduate programs and to make graduates of the certificate program more marketable in this job sector.

Supporting Documents

Building Systems Engineering CT.pdf

MST PC July 2020.pdf

Course Reviewer Comments

tibbettsmg (10/01/20 2:44 pm): Rollback: attach documents

tibbettsmg (10/28/20 10:05 am): Rollback: Rollback for administrative changes. Content needs to be formatted in course/text boxes consistent with DC form format. DSCC chair to follow up with addt'l details. MT

Key: 370

Program Change Request

New Program Proposal

Date Submitted: 11/06/20 4:06 pm

Viewing: PROPOSED : Chemical Process Engineering CT

File: 372

Last edit: 12/16/20 11:37 am

Changes proposed by: jcwang

Start Term
Fall 2021
Program Code
PROPOSED
Department
Chemical and Biochemical Engineering
Title
Chemical Process Engineering CT

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. 11/06/20 6:38 am Marita Tibbetts (tibbettsmg): Rollback to Initiator
2. 11/12/20 9:42 am Hu Yang (huyang): Approved for RCHEMENG Chair
3. 11/12/20 10:12 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
4. 11/20/20 12:31 pm Stephen Raper (sraper): Approved for Engineering DSCC Chair
5. 11/25/20 7:34 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
6. 12/16/20 11:38 am Marita Tibbetts (tibbettsmg):

Approved for CCC
Meeting Agenda

7. 12/16/20 12:38 pm
Stephen Raper
(sraper): Approved
for Campus
Curricula
Committee Chair

The graduate certificate in Chemical Process Engineering allows working professionals to add to skills relevant to their career while developing a deeper understanding of chemical engineering fundamentals.

The graduate certificate program is open to all individuals holding a bachelor's degree in chemical engineering or a closely allied discipline with an overall GPA of 3.0 or those holding a bachelor's degree in chemical engineering or a closely allied discipline with an overall GPA of 2.75 and having a minimum of one year of work experience.

Students admitted to the certificate program will have non-degree graduate status, but will earn graduate credit for the courses they complete. In order to receive a Graduate Certificate, the student must have an average graduate cumulative grade point of 3.0 or better on a 4.0 scale in the certificate courses taken.

If the four-course sequence approved by the graduate advisor is completed with a grade of B or better in each of the courses taken, the student will, upon application, be admitted to the Master of Science in Chemical Engineering program. The certificate courses taken by students admitted to the program will count towards the M.S. in Chemical Engineering program.

Core Courses: Select two from the following courses		
CHEM ENG 5100	Intermediate Transport Phenomena	3
CHEM ENG 5110	Intermediate Chemical Reactor Design	3
CHEM ENG 5150	Intermediate Process Computing	3
CHEM ENG 5220	Intermediate Engineering Thermodynamics	3

Elective Courses: Select two additional 3-credit Chem Eng courses at the 5000 or 6000-level		
CHEM ENG 5120	Interfacial Phenomena In Chemical Engineering	3
CHEM ENG 5130	Risk Assessment and Reduction	3
CHEM ENG 5161	Intermediate Molecular Engineering	3
CHEM ENG 5170	Physical Property Estimation	3
CHEM ENG 5190	Plantwide Process Control	3
CHEM ENG 5200	Biomaterials I	3
CHEM ENG 5210	Intermediate Biochemical Reactors	3
CHEM ENG 5250	Isolation and Purification of Biologicals	3
CHEM ENG 5300	Principles Of Engineering Materials	3
CHEM ENG 5305	Hazardous Materials Management	1
CHEM ENG 5310	Structure and Properties of Polymers	3
CHEM ENG 5315	Corrosion and Its Prevention	3
CHEM ENG 5320	Introduction to Nanomaterials	3

CHEM ENG 5330	Alternative Fuels	3
CHEM ENG 5340	Principles of Environmental Monitoring	3
CHEM ENG 5350	Environmental Chemodynamics	3
CHEM ENG 6100	Advanced Chemical Engineering Thermodynamics	3
CHEM ENG 6110	Advanced Transport Phenomena	3
CHEM ENG 6120	Applied Mathematics In Chemical Engineering	3
CHEM ENG 6140	Applied Optimization In Chemical Engineering	3
CHEM ENG 6150	Molecular Modeling and Simulation	3
CHEM ENG 6180	Advanced Applications of Computational Fluid Dynamics	3
CHEM ENG 6241	Intermediate Chemical Process Safety	3
CHEM ENG 6300	Biomaterials II	3
CHEM ENG 6310	Nanomaterials	3
CHEM ENG 6330	Physicochemical Operations In Environmental Engineering Systems	3

Justification for request
CIP Code: 140701

The students targeted for this certificate are primarily early-career and mid-career working professionals who want to acquire a deeper understanding of chemical engineering fundamentals to enhance the essential engineering skills relevant to their careers. This certificate program will help not only the working professionals expedite and broaden their career advancement but also the Chemical and Biochemical Engineering Department recruit more graduate students as it can be used as a gateway into our MS and PhD programs. The Chemical and Biochemical Engineering Department will market this certificate to national and international students and this effort will increase the visibility of our department and our university.

Supporting Documents

Graduate Certificate Chemical Process Engineering.pdf

MS&T PC July 2020.pdf

Course Reviewer Comments

tibbettsmg (11/06/20 6:38 am): Rollback: rollback to make additions. MT

tibbettsmg (12/16/20 11:37 am): added CT to title. mt

Key: 372

Program Change Request

New Program Proposal

Date Submitted: 11/09/20 11:12 am

Viewing: PROPOSED : Surface Water Resources CT

File: 371

Last edit: 11/09/20 11:12 am

Changes proposed by: seelyj

Start Term
Fall 2021
Program Code
PROPOSED
Department
Civil, Architectural, and Environmental Engineering
Title
Surface Water Resources CT

Program Requirements and 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. Kristy Giacomelli-Feys

Approval Path

1. 10/01/20 2:45 pm Marita Tibbetts (tibbettsmg): Rollback to Initiator
2. 10/01/20 3:22 pm Joel Burken (burken): Approved for RCIVILEN Chair
3. 10/02/20 6:04 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 8:29 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post
6. 10/28/20 10:06 am Marita Tibbetts

(tibbettsmg):
Rollback to Initiator

7. 11/09/20 11:29 am
Joel Burken
(burken): Approved
for RCIVILEN Chair

8. 11/10/20 6:24 am
Marita Tibbetts
(tibbettsmg):
Approved for CCC
Secretary

9. 11/20/20 12:31 pm
Stephen Raper
(sraper): Approved
for Engineering
DSCC Chair

10. 11/25/20 7:34 am
Marita Tibbetts
(tibbettsmg):
Approved for
Pending CCC
Agenda post

11. 12/16/20 11:36 am
Marita Tibbetts
(tibbettsmg):
Approved for CCC
Meeting Agenda

12. 12/16/20 12:38 pm
Stephen Raper
(sraper): Approved
for Campus
Curricula
Committee Chair

Surface Water Resources CT

(Offered in Civil Engineering Discipline)

WATER RESOURCES ENGINEERING COURSES (Choose THREE courses from the following):

CIV ENG 5330	Unsteady Flow Hydraulics	3
CIV ENG 5331	Hydraulics Of Open Channels	3
CIV ENG 5338	Hydrologic Engineering	3
CIV ENG 6338	Advanced Hydrology	3
CIV ENG 6340	Urban Hydrology	3

RELATED COURSES (Chose ONE course from the following):

CIV ENG 5605	Environmental Systems Modeling	3
CIV ENG 5642	Sustainability, Population, Energy, Water, and Materials	3

Justification for request

The purpose of the certificate is to provide the students in CArEE who are interested in careers in surface water resources engineering a formal recognition of this accomplishment. A certificate in Surface Water Resources will facilitate students to enter the CE graduate program upon completion of the certificate and to give students and advantage when applying for careers in water resources engineering, environmental engineering, water resources management, and other fields. The student targeted for this certificate are primarily off-campus graduate students.

Supporting Documents

[Surface Water Resources CT.pdf](#)

[MST PC July 2020.pdf](#)

Course Reviewer Comments

tibbettsmg (10/01/20 2:45 pm): Rollback: attached documents

tibbettsmg (10/28/20 10:06 am): Rollback: Rollback for administrative changes. Content needs to be formatted in course/text boxes consistent with DC form format. DSCC chair to follow up with addt'l details. MT

Key: 371

Program Change Request

New Program Proposal

Date Submitted: 11/17/20 4:53 pm

Viewing: PROPOSED : UCT - Technology, Philosophy, and Ethical Futures

File: 368

Last edit: 11/17/20 4:53 pm

Changes proposed by: gamezp

Start Term
Fall 2021
Program Code
PROPOSED
Department
Arts, Languages, & Philosophy
Title
UCT - Technology, Philosophy, and Ethical Futures

Program Requirements and 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. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. Kristy Giacomelli-Feys

Approval Path

1. 09/08/20 7:07 pm Audra Merfeld-Langston (audram): Approved for RPHILOSO Chair
2. 09/09/20 7:21 am Marita Tibbetts (tibbettsmg): Rollback to Initiator
3. 09/09/20 3:22 pm Audra Merfeld-Langston (audram): Approved for RPHILOSO Chair
4. 09/10/20 7:09 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
5. 09/10/20 7:50 am Petra Dewitt (dewittp): Rollback to Initiator
6. 09/10/20 10:49 am Audra Merfeld-Langston (audram): Rollback to Initiator

7. 09/24/20 11:37 am Audra Merfeld-Langston (audram): Approved for RPHILOSO Chair

8. 09/24/20 11:45 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

9. 09/24/20 2:09 pm Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair

10. 10/13/20 8:31 am Marita Tibbetts (tibbettsmg): Approved for Pending CCC Agenda post

11. 10/28/20 10:09 am Marita Tibbetts (tibbettsmg): Rollback to Initiator

12. 11/11/20 11:41 am Audra Merfeld-Langston (audram): Approved for RPHILOSO Chair

13. 11/12/20 12:19 pm Marita Tibbetts (tibbettsmg): Rollback to Initiator

14. 11/19/20 4:56 pm Audra Merfeld-Langston (audram): Approved for RPHILOSO Chair

15. 11/20/20 5:57 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary

16. 11/20/20 9:09 am Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair

17. 11/25/20 7:35 am Marita Tibbetts (tibbettsmg):

Approved for
Pending CCC
Agenda post
18. 12/16/20 11:37 am
Marita Tibbetts
(tibbettsmg):
Approved for CCC
Meeting Agenda
19. 12/16/20 12:37 pm
Stephen Raper
(sraper): Approved
for Campus
Curricula
Committee Chair

This certificate is designed to help make one an informed citizen, a reflective human being, and a potential difference-maker.

We live in a technological world, with rapid developments in emerging nano-, bio-, and information and communications technology taking place every day. But the very speed of these change can make it difficult to see how we are affected by them. How do new technologies impact our environments, our economies, our lived experiences, and our very selves? How can we, as users, cope with them? Perhaps even more importantly, what sorts of obligations and responsibilities do engineers and technicians, as makers, have to make sure they are safe, healthy, or liberating? Finally, how do we, as persons, understand ourselves as users, makers, and human beings?

These are precisely the sorts of questions that the Certificate in Technology, Philosophy, and Ethical Futures will help one address. Pursuing this course of study will familiarize students not only with the dilemmas, challenges, and opportunities that new technologies present but with the conceptual tools to navigate them, which will serve them well both in industry and in personal life.

REQUIREMENTS:

Required Capstone Course:		
PHILOS 4666	Course PHILOS 4666 Not Found	
3 credits from:		
PHILOS 1105	Introduction To Philosophy	3
PHILOS 1130	Introduction to Ethics	3
6 credits from:		
PHILOS 3225	Engineering Ethics	3
PHILOS 4320	Minds And Machines	3
PHILOS 4350	Environmental Ethics	3
PHILOS 4665	Course PHILOS 4665 Not Found	
PSYCH 4710	Human Factors	3
PSYCH 4720	Psychology of Social Technology	3
HISTORY 3510	Twentieth Century Technology And Society	3
POL SCI 4320	Course POL SCI 4320 Not Found	

Justification for request

The original justification for this request is below. Here I respond to comments from the Curriculum Committee on the first submission.

1) The committee requested we change the title from all caps; we've done so.

2) The committee requested we submit a permanent course proposal for what was originally submitted as Pol Sci 3001; we've done so, as Pol Sci 4320.

3) The committee requested we use the course box format; we've done so, as best as we understood. Because this proposal is accompanied by both several new course proposals, and several coincidental course name changes, we are including the following info about these:

PHILOS 4666 - Technology, Ethics, and Philosophy - this does not show up in the course box because it is a new course designed both for this certificate and to serve the needs of students wanting ethics in training in CS and ECE. The proposal for this course has been submitted along with this proposal.

PHILOS 4665 – Creating Future Cities - this is a new course being created specifically for this certificate. The course proposal has been submitted along with this proposal so it does not show up in the course box yet.

POL SCI 4320 – Policy for Science, Technology, and Innovation - this has been offered as an experimental course twice, though with different prerequisites. The proposal for a permanent number is now being submitted along with this certificate and another proposal for a certificate in Science, Technology, and Society, for which it will also be a requirement.

4) The committee requested clarification on PHILOS 4666; if it was a requirement, why was it not included under the requirement? It was always included, and we've reordered the requirements to make that clear. In the original version, it was placed at the end of the requirements to signal that it is intended to be a capstone course, ideally taken at the end of the certificate sequence. The confusion might have arisen because it was labelled "required capstone course" - this was to signify that this specific course is required, while the other requirements are "distribution requirements", allowing students choice between several courses.

Hopefully this clears up any issues. Thank you for your consideration. The original (and enduring) justification is below.

The purpose of this certificate is to demonstrate to employers and others that the student or recipient has a solid background in both applied ethics and normative theory. Demand for excellence, or at the

very least competence, in ethical decision-making is increasing, both in the tech and corporate worlds:

https://qz.com/work/1793582/why-you-should-hire-a-moral-philosopher/
https://qz.com/1734381/why-tech-companies-need-to-hire-philosophers/
https://www.theguardian.com/business-to-business/2018/mar/29/i-work-therefore-i-am-why-businesses-are-hiring-philosophers

Allowing students from STEM disciplines the chance to take a manageable 12-credit certificate in philosophy that will hone these skills will ultimately make them more attractive candidates, standing apart from those who have focused only on technical and/or management skills; moreover, for students primarily studying in the humanities, it provides an explicit area of emphasis on values, tying their studies to concrete cases in the real world.

Supporting Documents

MS&T PC August 2020 (3).pdf

Proposal_Technology, Philosophy, and Ethical Futures (1).pdf

Course Reviewer Comments

tibbettsmg (09/09/20 7:21 am): Rollback: Please submit supporting approval documents. MT

dewittp (09/10/20 7:50 am): Rollback: Roll back, please attach all supporting documents.

audram (09/10/20 10:49 am): Rollback: Please see comments about attaching supporting documents.

tibbettsmg (10/28/20 10:09 am): Rollback: Rollback for administrative changes. Content needs to be formatted in course/text boxes consistent with DC form format. DSCC chair to follow up with addt'l details. Also please modify title so as to not all capitalized. MT

tibbettsmg (11/12/20 10:55 am): formatted course list. mt

tibbettsmg (11/12/20 12:19 pm): Rollback: Rolling back for review of formatting changes. MT

Key: 368

Course Change Request

New Experimental Course Proposal

Date Submitted: 10/13/20 1:21 pm

Viewing: **BIO SCI 5001.007 : Forest Insect Diversity & Ecology**

File: 4749

Last edit: 10/30/20 10:43 am

Changes proposed by: shannonk

Requested Effective Change Date	Summer 2021
Department	Biological Sciences
Discipline	Biological Sciences (BIO SCI)
Course Number	5001
Topic ID	007
Experimental Title	

Forest Insect Diversity & Ecology

Experimental Abbreviated Course Title	Insect Div and Ecol
Instructors	Dr. Robin Verble

Experimental 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. **CAT entry**
8. **Registrar**

Approval Path

1. 10/13/20 1:24 pm David Duvernell (duvernelld): Approved for RBIOLSCI Chair
2. 10/13/20 1:35 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 10/30/20 10:44 am Katie Shannon (shannonk): Approved for

Sciences DSCC Chair

4. 11/25/20 7:36 am
   Marita Tibbetts (tibbettsmg):
   Approved for Pending CCC Agenda post

5. 12/16/20 11:41 am
   Marita Tibbetts (tibbettsmg):
   Approved for CCC Meeting Agenda

6. 12/16/20 12:36 pm
   Stephen Raper (sraper):
   Approved for Campus Curricula Committee Chair

7. 12/17/20 9:10 am
   Matthew Ford (mvford):
   Approved for CAT entry

In this course, you will learn key insect characteristics, common forest insects, insect life history and ecology, and entomological collection techniques. This course will be taught at the Ozark Research Field Station and will consist of several field trips to collecting sites and laboratory identification of insects.

Prerequisites
  BIO SCI 2263

Field Trip
Statement

This course will be held at the Ozark Research Field Station in Newburg, Missouri.
Students are expected to arrange their own transportation to and from the Station.

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

Justification for
new course:
  Gives students field experience and utilizes field station.

Semester(s)
previously taught
  Summer 2020

Co-Listed
Courses:

Course Reviewer
Comments

Key: 4749

Preview Bridge

Course Change Request

New Experimental Course Proposal

Date Submitted: 11/12/20 12:34 pm

Viewing: **COMP ENG 5001.003 : Introduction to Convex Optimization**

File: 4762

Last edit: 12/16/20 11:48 am

Changes proposed by: stanleyj

Requested Effective Change Date	Fall 2021
Department	Electrical and Computer Engineering
Discipline	Computer Engineering (COMP ENG)
Course Number	5001
Topic ID	003
Experimental Title	Introduction to Convex Optimization
Experimental Abbreviated Course Title	Intro to Convex Opt
Instructors	Dr. Ahmad Alsharoa

Experimental 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. **CAT entry**
8. **Registrar**

Approval Path

1. 11/12/20 1:52 pm Watkins (watkins): Approved for RELECENG Chair
2. 11/12/20 2:08 pm Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 11/20/20 12:30 pm Stephen Raper (sraper): Approved for

Engineering DSCC
Chair

4. 11/25/20 7:37 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for
   Pending CCC
   Agenda post

5. 12/16/20 11:48
   am
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Meeting Agenda

6. 12/16/20 12:36
   pm
   Stephen Raper
   (sraper):
   Approved for
   Campus Curricula
   Committee Chair

7. 12/17/20 9:14 am
   Matthew Ford
   (mvford):
   Approved for CAT
   entry

The course will cover techniques in solving convex optimization problems emerging
in engineering and computer science. Topics covered include convex functions,
convex sets, optimization problem formulation, duality and Karush Kuhn Tucker (KKT)
conditions, and convex optimization problem formulation and solving.

Prerequisites
  Sophomore standing or above. Math 3108.

Field Trip
Statement

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

Justification for
new course:

This course has already been approved. The change here is that the course is co-
listed as Comp Sci 5001-Introduction to Convex Optimization.

Semester(s)
previously taught

Offered Spring 2021.

Co-Listed
Courses:

COMP SCI 5001 - Special Topics

Course Reviewer
Comments

Key: 4762

Preview Bridge

Course Change Request

New Experimental Course Proposal

Date Submitted: 11/05/20 9:38 am

Viewing: **COMP SCI 5001.012 : Fundamentals of Cyber-Physical Systems**

File: 4755

Last edit: 11/24/20 2:33 pm

Changes proposed by: zhupe

Requested Effective Change Date	Spring 2021
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	5001
Topic ID	012
Experimental Title	

   Fundamentals of Cyber-Physical Systems

Experimental Abbreviated Course Title	Cyber-Physical Systems
Instructors	Sajal K. Das

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. 11/05/20 10:53 am
   Samuel Frimpong (frimpong):
   Approved for RCOMPSCI Chair
2. 11/05/20 2:13 pm
   Marita Tibbetts (tibbettsmg):
   Approved for CCC Secretary
3. 11/20/20 12:31 pm
   Stephen Raper (sraper):

Approved for Engineering DSCC Chair

4. 11/25/20 7:37 am
Marita Tibbetts (tibbettsmg):
Approved for Pending CCC Agenda post

5. 12/16/20 11:41 am
Marita Tibbetts (tibbettsmg):
Approved for CCC Meeting Agenda

6. 12/16/20 12:36 pm
Stephen Raper (sraper):
Approved for Campus Curricula Committee Chair

7. 12/17/20 9:16 am
Matthew Ford (mvford):
Approved for CAT entry

This course deals with fundamental concepts, theory and practice of cyber-physical systems (CPSs). Students will learn key design principles, models, and research trends in analysis, control and optimization of reliable and secure CPS infrastructures with interdisciplinary applications to smart city, smart grid, smart transportation, and smart healthcare.

Prerequisites

A grade of "C" or better in both Comp Sci 5200 and Math 3108.

Field Trip
Statement

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

Justification for
new course:

Cyber-physical systems (CPSs) are emerging interdisciplinary topic with numerous real-life applications. They integrate cyber capabilities, such as sensing, communication, and computing, with physical capabilities. Examples of CPSs include electric power grid, automobiles, self-driving cars, aircrafts, advanced manufacturing, or pacemakers. Their operations in the physical world are determined by control algorithms on sensed data analytics. Additionally, humans could also be part of the CPS decision-making loop.

Designing solutions, algorithms and models for cyber-physical-human systems is extremely challenging due to their tight coupling and interdependence among physical, cyber and human worlds governed respectively by natural laws, computational models and abstractions, and human behaviors. Moreover, the designed solutions must be correct to ensure reliable and safety-critical operations of CPSs on which our daily lives have a stake.

Offering a course on CPSs is timely and cutting-edge. This is an ideal course for graduate students in computer science and most other engineering disciplines, as well as for practitioners using CPSs in mechanical and aerospace engineering, automotive and transportation engineering, civil and environmental engineering, mining engineering, medical technology, and large-scale infrastructure operations, etc. Thus, this course will help develop an excellent foundation for students seeking industry jobs and/or higher studies.

Justification for the prerequisite CS5200:
To handle this advanced course on CPS, students need to have CS5200. Many undergrads take 5200 to satisfy 5XXX level course requirement for BS degree. After two offerings, when CPS course will have a regular course number, it would be higher than 5200.

Semester(s)
previously taught

Co-Listed
Courses:

Course Reviewer
Comments

Key: 4755

Course Change Request

New Experimental Course Proposal

Date Submitted: 11/05/20 9:27 pm

Viewing: **COMP SCI 6001.007 : Advances in Cyber-Physical Systems**

File: 4756

Last edit: 11/06/20 9:43 am

Changes proposed by: zhupe

Requested Effective Change Date	Spring 2021
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	6001
Topic ID	007
Experimental Title	Advances in Cyber-Physical Systems
Experimental Abbreviated Course Title	Advances in CPS
Instructors	Sajal K. Das

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. 11/05/20 10:53 am
   Samuel Frimpong (frimpong): Approved for RCOMPSCI Chair
2. 11/05/20 2:10 pm
   Marita Tibbetts (tibbettsmg): Rollback to Initiator
3. 11/06/20 9:12 am
   Samuel Frimpong (frimpong):

Approved for
RCOMPSCI Chair

4. 11/06/20 9:43 am
Marita Tibbetts
(tibbettsmg):
Approved for CCC
Secretary

5. 11/20/20 12:31
pm
Stephen Raper
(sraper):
Approved for
Engineering DSCC
Chair

6. 11/25/20 7:38 am
Marita Tibbetts
(tibbettsmg):
Approved for
Pending CCC
Agenda post

7. 12/16/20 11:41
am
Marita Tibbetts
(tibbettsmg):
Approved for CCC
Meeting Agenda

8. 12/16/20 12:36
pm
Stephen Raper
(sraper):
Approved for
Campus Curricula
Committee Chair

9. 12/17/20 9:21 am
Matthew Ford
(mvford):

Approved for CAT
entry

This interdisciplinary course deals with advanced concepts in cyber-physical-social systems (CPSs) with cutting-edge applications in smart environments including smart cities, grid, transportation, and healthcare. Students will learn core principles, models and theory behind the design and analysis of secure and trustworthy CPSs.

Prerequisites
A grade of "C" or better in both Comp Sci 5200 and Math 3108.

Field Trip
Statement

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

Justification for
new course:
Cyber-physical systems (CPSs) are emerging interdisciplinary topic with numerous real-life applications. They integrate cyber capabilities, such as sensing, communication, and computing, with physical capabilities. Examples of CPSs include electric power grid, automobiles, self-driving cars, aircrafts, advanced manufacturing, or pacemakers. Their operations in the physical world are determined by control algorithms on sensed data analytics. Additionally, humans could also be part of the CPS decision-making loop.

Designing solutions, algorithms and models for cyber-physical-human systems is extremely challenging due to their tight coupling and interdependence among physical, cyber and human worlds governed respectively by natural laws, computational models and abstractions, and human behaviors. Moreover, the designed solutions must be correct to ensure reliable and safety-critical operations of CPSs on which our daily lives have a stake.

Offering a course on CPSs is timely and cutting-edge. This is an ideal course for graduate students in computer science and most other engineering disciplines, as well as for practitioners using CPSs in mechanical and aerospace engineering,

automotive and transportation engineering, civil and environmental engineering,
mining engineering, medical technology, and large-scale infrastructure operations,
etc. Thus, this course will help develop an excellent foundation for students seeking
industry jobs and/or higher studies.

Semester(s)
previously taught

Co-Listed
Courses:

Course Reviewer
Comments

tibbettsmg (11/05/20 2:10 pm): Rollback: Cannot have the same title and
description as the 5001 course. MT

Key: 4756

Preview Bridge

Course Change Request

New Experimental Course Proposal

Date Submitted: 11/05/20 2:52 pm

Viewing: **MATH 6001.008 : Finite Difference Methods for Partial Differential Equations**

File: 4758

Last edit: 11/10/20 6:21 am

Changes proposed by: prunnion

Requested Effective Change Date	Spring 2021
Department	Mathematics & Statistics
Discipline	Mathematics (MATH)
Course Number	6001
Topic ID	008
Experimental Title	Finite Difference Methods for Partial Differential Equations
Experimental Abbreviated Course Title	Finite Diff Methods PDE
Instructors	Daozhi Han, Yanzhi Zhang

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. 11/06/20 4:27 pm vsam: Approved for RMATHEMA Chair
2. 11/10/20 6:21 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 11/17/20 1:07 pm Katie Shannon (shannonk): Approved for

Sciences DSCC
Chair

4. 11/25/20 7:38 am
Marita Tibbetts
(tibbettsmg):
Approved for
Pending CCC
Agenda post

5. 12/16/20 11:41
am
Marita Tibbetts
(tibbettsmg):
Approved for CCC
Meeting Agenda

6. 12/16/20 12:37
pm
Stephen Raper
(sraper):
Approved for
Campus Curricula
Committee Chair

7. 12/17/20 9:24 am
Matthew Ford
(mvford):
Approved for CAT
entry

Derivation, implementation, and theoretical analysis of finite difference methods for
approximating solutions of partial differential equations.

Prerequisites
Math 5325 or Math 5603; and Math 5601 or any instructor-approved 4000-level or
higher course from another discipline with a significant computational component.

Field Trip
Statement

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

Justification for
new course:

This course is intended to modify the existing experimental course Math 6001.002
"Finite Difference and Spectral Methods for Partial Differential Equations." The
existing Math 6001.002 course included too many topics for a one-semester course,
so we are modifying the course to remove spectral methods (which will be taught in
a separate course to be added at a later date) and to change the prerequisite,
making the course more accessible to a wider variety of students.

We are listing Math 5601 as a prerequisite. Math 5601 has been offered
experimentally twice, and I just submitted a CC form to obtain a permanent course
number. If there is an issue with listing Math 5601 as a prerequisite at this time for a
Spring 2021 experimental course, then please process the prerequisite at this time
as follows:

"Math 5325 or Math 5603; and any instructor-approved 4000-level or higher course
with a significant computational component"

If this alternate prerequisite is necessary, we will go back and change the
prerequisite again before the next time the course is offered.

Hopefully this isn't too confusing! We're excited about offering this course in Spring
2021.

Semester(s)
previously taught

Spring 2018 (as "Finite Difference and Spectral Methods for Partial Differential
Equations")

Co-Listed
Courses:

Course Reviewer
Comments

Key: 4758

Preview Bridge

New Experimental Course Proposal

Date Submitted: 11/05/20 4:12 pm

Viewing: **PET ENG 6001.012 : Advanced Well and Drilling Technology**

File: 4759

Last edit: 11/06/20 8:29 am

Changes proposed by: ahikx7

Requested Effective Change Date	Fall 2021
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Petroleum Engineering (PET ENG)
Course Number	6001
Topic ID	012
Experimental Title	
	Advanced Well and Drilling Technology
Experimental Abbreviated Course Title	Adv Well &Drilling Tec
Instructors	Dr. Abdulmohsin Imqam

Experimental Catalog Description

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. 11/06/20 8:15 am David Borrok (borrokd): Approved for RGEOSENG Chair
2. 11/06/20 8:29 am Marita Tibbetts (tibbettsmg): Approved for CCC Secretary
3. 11/20/20 12:31 pm Stephen Raper (sraper): Approved for

Engineering DSCC Chair

4. 11/25/20 7:39 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for
   Pending CCC
   Agenda post

5. 12/16/20 11:41 am
   Marita Tibbetts
   (tibbettsmg):
   Approved for CCC
   Meeting Agenda

6. 12/16/20 12:37 pm
   Stephen Raper
   (sraper):
   Approved for
   Campus Curricula
   Committee Chair

7. 12/17/20 9:26 am
   Matthew Ford
   (mvford):
   Approved for CAT
   entry

The course provides a comprehensive overview of the principles and practices of advanced well and drilling engineering. Advanced drilling technologies covers topics including casing drilling technology and casing fatigue, remedial cement, fluid migration, and aspects wellbore construction and wellbore integrity, drilling problems and their solutions.

Prerequisites
Pet Eng 4210.

Field Trip
Statement

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

Total: 3

Justification for
new course:

There is no 6000 grade level in petroleum engineering syllabus covering these topics
in drilling and well technology class. Also, Dr. Imqam requires to teach 6000 level as
recommended in his tenure plan.

Semester(s)
previously taught

Co-Listed
Courses:

Course Reviewer
Comments

Key: 4759

Preview Bridge