

Minutes of the Campus Curricula Committee Meeting**May 31, 2018****1:00pm, 216 Parker Hall****(For Faculty Senate Meeting of June 14, 2018)**

Attendees: Steve Raper, Petra Dewitt, Thomas Schuman, Barry Flachsbart, Gearoid MacSithigh, Kristy Giacomelli and Brittany Parnell

The following curriculum forms were discussed and approved:

Course Change Forms:

File: 4532	CHEM ENG 4540: Energy Engineering and Economics
File: 2127.1	COMP SCI 2200: Theory of Computer Science
File: 813.1	COMP SCI 2300: File Structures and Introduction to Database Systems
File: 2507.6	COMP SCI 2500: Algorithms
File: 184.1	COMP SCI 3800: Introduction to Operating Systems
File: 2489.1	COMP SCI 5201: Object-Oriented Numerical Modeling I
File: 1617.1	COMP SCI 5403: Introduction to Robotics
File: 4542	COMP SCI 6204: Applied Graph Theory for Computer
File: 856.1	ELEC ENG 2120: Circuits II
File: 4540	ELEC ENG 6565: Power System Protection II
File: 4547	IS&T 1561: Algorithms and Programming with Java
File: 4548	IS&T 1562: Java and Data Structures

Degree Change Forms:

File: 145.9	BIOINFO-MI: Bioinformatics Minor
File: 34.5	CMP SC-PHD: Computer Science PhD
File: 163.2	EL ENG-MS: Electrical Engineering MS
File: 38.15	ECON-BA: Economics BA
File: 75.23	IST-BS: Information Science and Tch BS
File: 108.17	PE ENG-BS: Petroleum Engineering BS

Experimental Course Forms:

File: 4541	ELEC ENG 5001.006: Microgrids Systems and Architectures
File: 4532	EXP ENG 5001.001: Underwater Blasting
File: 4536	EXP ENG 6001.004: Post Blast Forensic Analysis
File: 4546	HISTORY 3001.005: Slavery and Abolition in the Atlantic World
File: 4545	NUC ENG 6001.005: Nuclear RELAP5 Thermal Hydraulic Analysis



The Curricula Committee recommended the approval of a minor creation policy to the Faculty Senate.

The meeting adjourned at 2:20pm

A handwritten signature in black ink that reads "Stephen A. Raper".

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

Course Change Request

New Course Proposal

Date Submitted: 05/09/18 2:42 pm

Viewing: **CHEM ENG 4540 : Energy Economics**

File: 4524

Last edit: 05/31/18 2:56 pm

Changes proposed by: smithjose

Requested Fall 2018

Effective Change

Date

Department Chemical and Biochemical Engineering

Discipline Chemical Engineering (CHEM ENG)

Course Number 4540

Title
Energy Economics

Abbreviated Energy Econ

Course Title

Catalog

Description

In Workflow

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

Approval Path

1. 05/11/18 3:20 pm
Muthanna Al-
Dahhan
(aldahhanm):
Approved for
RCHEMENG Chair
2. 05/15/18 8:17 am
Brittany Parnell
(ershenb):
Approved for CCC

- Secretary
3. 05/16/18 1:38 pm
scraper: Approved
for Engineering
DSCC Chair
 4. 05/17/18 11:25
am
Brittany Parnell
(ershenb):
Approved for
Pending CCC
Agenda post
 5. 05/31/18 2:57 pm
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
 6. 05/31/18 3:16 pm
scraper: Approved
for Campus
Curricula
Committee Chair

Provides holistic assessment of economic and technology issues related to traditional and renewable energy resources. Teaches economic principles to assess economic sustainability and Life Cycle Analysis to assess environmental sustainability. Work in teams to conduct techno-economic analysis and demonstrate understanding through written report.

Prerequisites

Econ 2100.

Field Trip

Statement

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

Justification for
new course:

Course is currently co-taught with Economics department. This course will provide an additional elective for senior chemical engineering students wishing to gain more experience in energy with a focus on the economic and policy surrounding energy technology. This course will help better inform engineering students regarding various energy technologies that they will encounter in the work place after graduation and help them understand the relation between energy and economics and the associated trade offs to consider when choosing between technologies.

Semesters
previously
offered as an
experimental
course

This course has been taught for 4 years in the economics department. This request is to cross-list this course in Chemical Engineering.

Co-Listed
Courses:

ECON 4540 - Energy Economics

Course Reviewer
Comments

ershenb (05/31/18 2:56 pm): changed title to "Energy Economics" and prerequisite to "Econ 2100" to match its co-list, Econ 4540.

Course Change Request

Date Submitted: 05/02/18 6:48 am

Viewing: **COMP SCI 2200 : Theory of Computer Science**

File: 2127.1

Last edit: 05/04/18 9:17 am

Changes proposed by: tauritzd

Programs
referencing this
course

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

[CMP SC-BS: Computer Science BS](#)

[CMP SC-MI: Computer Science Minor](#)

Other Courses
referencing this
course

In The Prerequisites:

[COMP SCI 3500 : Programming Languages And Translators](#)

[COMP SCI 6201 : Theory Of Computation](#)

Requested	Fall 2018 08/01/2014
Effective Change Date	
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	2200
Title	Theory of Computer Science

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. 05/02/18 9:16 am
George Markowsky (markowskyg):
Approved for RCOMPSCI Chair
2. 05/02/18 11:14 am
Brittany Parnell (ershenb):

Abbreviated
Course Title

Theory of Computer **Sci**
Science

Approved for CCC
Secretary

Catalog
Description

3. 05/09/18 1:42 pm
scraper: Approved
for Engineering
DSCC Chair
4. 05/10/18 3:35 pm
Brittany Parnell
(ershenb):
Approved for
Pending CCC
Agenda post
5. 05/31/18 3:01 pm
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
6. 05/31/18 3:16 pm
scraper: Approved
for Campus
Curricula
Committee Chair

This course will cover the theoretical underpinnings of computer science. In particular, this course will cover the following topics: basic computability and formal language concepts, regular languages, context free languages, recursively-enumerable languages, and classes P, NP, and NP-completeness.

Prerequisites

A **grade of "C"** or better ~~grade~~ in both Comp Sci 1200 and Comp Sci **1575. 1510-**

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:

Comp Sci 1510 has been renumbered to Comp Sci 1575.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

sraper (05/04/18 9:17 am): fixed course title and modified abbreviated title per D. Tauritz.

Key: 2127

[Preview Bridge](#)

Course Change Request

Date Submitted: 05/02/18 6:50 am

Viewing: **COMP SCI 2300 : File Structures and
And Introduction to ~~Te~~-Database Systems**

File: 813.1

Last edit: 05/09/18 9:46 am

Changes proposed by: tauritzd

Programs

referencing this

course

[CMP SC-BS: Computer Science BS](#)

[CMP SC-MI: Computer Science Minor](#)

[COMP HEALTH-MI: Computational Health](#)

[BIOINFO-MI: Bioinformatics Minor](#)

Other Courses

referencing this

course

In The Prerequisites:

[COMP SCI 5300 : Database Systems](#)

[COMP SCI 5402 : Introduction to Data Mining](#)

Requested

Fall 2018 ~~08/01/2014~~

Effective Change

Date

Department

Computer Science

Discipline

Computer Science (COMP SCI)

Course Number

2300

Title

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. 05/02/18 9:16 am
George
Markowsky
(markowskyg):
Approved for
RCOMPSCI Chair
2. 05/02/18 11:15
am
Brittany Parnell
(ershenb):

File Structures ~~and~~ ~~And~~ Introduction ~~to~~ ~~To~~ Database Systems

Abbreviated Course Title File Struc Intro Databas

Catalog Description

- Approved for CCC Secretary
3. 05/09/18 1:42 pm
sraper: Approved for Engineering DSCC Chair
4. 05/10/18 3:35 pm
Brittany Parnell (ershenb):
Approved for Pending CCC Agenda post
5. 05/31/18 3:11 pm
Brittany Parnell (ershenb):
Approved for CCC Meeting Agenda
6. 05/31/18 3:16 pm
sraper: Approved for Campus Curricula Committee Chair

Course covers major topics in file structures and database systems including techniques for disk access and organization, record and file structures, index structures, sequential file, dense/sparse and secondary indexes, B-trees, range queries, insertion/deletion, hash tables, fundamentals of database systems, the ER model, relational model, algebra and SQL.

Prerequisites

A **grade of "C"** or better ~~grade~~ in Comp Sci **1575. 1510-**

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:

Comp Sci 1510 has been renumbered as Comp Sci 1575.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Course Change Request

Date Submitted: 05/02/18 6:51 am

Viewing: **COMP SCI 2500 : Algorithms**

File: 2507.6

Last approved: 04/25/14 3:05 pm

Last edit: 05/31/18 3:27 pm

Changes proposed by: tauritzd

Programs

referencing this
course

[CMP SC-BS: Computer Science BS](#)

[CMP SC-MI: Computer Science Minor](#)

Other Courses

referencing this
course

In The Prerequisites:

[COMP ENG 5803 : Mathematical Logic I](#)

[COMP SCI 3100 : Software Engineering I](#)

[COMP SCI 3600 : Introduction to Computer Security](#)

[COMP SCI 5101 : Software Testing And Quality Assurance](#)

[COMP SCI 5102 : Object-Oriented Analysis And Design](#)

[COMP SCI 5200 : Analysis Of Algorithms](#)

[COMP SCI 5203 : Mathematical Logic I](#)

[COMP SCI 5400 : Introduction To Artificial Intelligence](#)

[COMP SCI 5401 : Evolutionary Computing](#)

[COMP SCI 5402 : Introduction to Data Mining](#)

[COMP SCI 5404 : Introduction to Computer Vision](#)

[COMP SCI 5405 : Java Gui & Visualization](#)

[COMP SCI 5406 : Interactive Computer Graphics](#)

[COMP SCI 5500 : The Structure of a Compiler](#)

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. 05/02/18 9:16 am
George Markowsky (markowsky):
Approved for RCOMPSCI Chair
2. 05/02/18 11:19 am
Brittany Parnell (ershenb):

[COMP SCI 5602 : Introduction to Cryptography.](#)

[COMP SCI 5800 : Distributed Computing](#)

[COMP SCI 5802 : Introduction to Parallel Programming and Algorithms](#)

[COMP SCI 5803 : Introduction to High Performance Computer Architecture](#)

[MATH 5154 : Mathematical Logic I](#)

[PHILOS 4354 : Mathematical Logic I](#)

Requested	Fall 2018 08/01/2014
Effective Change Date	
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	2500
Title	Algorithms
Abbreviated Course Title	Algorithms

Catalog Description

Students will solve recurrence relations, analyze algorithms for correctness and time/space complexity, apply these analysis techniques to fundamental dynamic programming, greedy, shortest-path, minimal spanning trees, and maximum flow algorithms and validate these analyses through programming.

Prerequisites

A **grade of "C"** or better ~~grade~~ in both Comp Sci 1200 and Comp Sci **1575; 1510;** preceded by a ~~"C" or better~~ **grade of "C" or better** in either Math 1208 or Math 1214, or accompanied by either Math 1208 or Math 1214.

Approved for CCC Secretary

3. 05/09/18 1:42 pm
scraper: Approved for Engineering DSCC Chair

4. 05/10/18 3:35 pm
Brittany Parnell (ershenb):

Approved for Pending CCC Agenda post

5. 05/31/18 3:28 pm
Brittany Parnell (ershenb):

Approved for CCC Meeting Agenda

6. 05/31/18 3:29 pm
scraper: Approved for Campus Curricula Committee Chair

History

1. Apr 25, 2014 by lahne (2507.1)

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:

Comp Sci 1510 has been renumbered as Comp Sci 1575.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

ershenb (05/31/18 3:27 pm): added "a grade of "C" or better" before "preceded by."
removed "better grade."

Key: 2507

[Preview Bridge](#)

Course Change Request

Date Submitted: 05/02/18 6:54 am

Viewing: **COMP SCI 3800 : Introduction to Te**
Operating Systems

File: 184.1

Last edit: 05/09/18 10:16 am

Changes proposed by: tauritzd

Programs

referencing this
course

[CMP SC-BS: Computer Science BS](#)

[CMP SC-MI: Computer Science Minor](#)

[CP ENG-BS: Computer Engineering BS](#)

Other Courses

referencing this
course

In The Prerequisites:

[COMP ENG 5170 : Real-Time Systems](#)

[COMP SCI 3601 : Digital Forensics](#)

[COMP SCI 4600 : Computer Communications And Networks](#)

[COMP SCI 4601 : Computer Network Concepts And Technology.](#)

[COMP SCI 5205 : Real-Time Systems](#)

[COMP SCI 5600 : Computer Networks](#)

[COMP SCI 5800 : Distributed Computing](#)

[COMP SCI 5801 : The Structure Of Operating Systems](#)

[COMP SCI 5802 : Introduction to Parallel Programming and Algorithms](#)

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. 05/02/18 9:17 am
George Markowsky (markowskyg):
Approved for RCOMPSCI Chair
2. 05/02/18 11:20 am
Brittany Parnell (ershenb):

Requested **Fall 2018** ~~08/01/2014~~
 Effective Change
 Date
 Department Computer Science
 Discipline Computer Science (COMP SCI)
 Course Number 3800
 Title
 Introduction **to** ~~To~~ Operating Systems
 Abbreviated Intro To Operating Syst
 Course Title

Catalog
 Description

Approved for CCC
 Secretary
 3. 05/09/18 1:42 pm
 scraper: Approved
 for Engineering
 DSCC Chair
 4. 05/10/18 3:35 pm
 Brittany Parnell
 (ershenb):
 Approved for
 Pending CCC
 Agenda post
 5. 05/31/18 3:28 pm
 Brittany Parnell
 (ershenb):
 Approved for CCC
 Meeting Agenda
 6. 05/31/18 3:29 pm
 scraper: Approved
 for Campus
 Curricula
 Committee Chair

This course teaches the concepts, structure, and mechanisms of Operating Systems. Topics include process management, concurrency, synchronization, deadlock, multithreading, memory management, scheduling, and internetworking. Special emphasis is given to Unix and its modern-day derivatives.

Prerequisites

A **grade of "C"** or better ~~grade~~ in all **of of** Comp Sci **1575, 1510,** Comp Sci 1200, and Comp Eng 3150.

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:

Comp Sci 1510 has been renumbered as Comp Sci 1575.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Course Change Request

Date Submitted: 05/03/18 4:39 pm

Viewing: **COMP SCI 5201 : Object-Oriented Numerical Modeling I**

File: 2489.1

Last edit: 05/04/18 8:57 am

Changes proposed by: tauritzd

Programs

referencing this

course

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

Other Courses

referencing this

course

In The Prerequisites:

[COMP SCI 5202 : Object-Oriented Numerical Modeling II](#)

Requested **Fall 2018** ~~08/01/2014~~

Effective Change

Date

Department Computer Science

Discipline Computer Science (COMP SCI)

Course Number 5201

Title

Object-Oriented Numerical Modeling I

Abbreviated **Object Orient** ~~Object-Orient~~

Course Title Num Mdl I

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. 05/04/18 8:19 am
George Markowsky (markowskyg):
Approved for RCOMPSCI Chair
2. 05/04/18 8:58 am
Brittany Parnell (ershenb):
Approved for CCC

Catalog
Description

- Secretary
3. 05/09/18 1:42 pm
scraper: Approved
for Engineering
DSCC Chair
4. 05/10/18 3:35 pm
Brittany Parnell
(ershenb):
Approved for
Pending CCC
Agenda post
5. 05/31/18 3:29 pm
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
6. 05/31/18 3:29 pm
scraper: Approved
for Campus
Curricula
Committee Chair

A study of object-oriented modeling of the scientific domain. Techniques and methodologies will be developed enabling the student to build a class library of reusable software appropriate for scientific application. Applications will be drawn from mechanics, finance, and engineering.

Prerequisites

A **grade of "C"** or better ~~grade~~ in both Comp Sci 3200 and Comp Sci **1575**; ~~1510~~; a **grade of "C"** or better ~~grade~~ in one ~~of of~~ Math 3108, 3103, 3329.

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:

Comp Sci 1510 has been renumbered as Comp Sci 1575.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Key: 2489

[Preview Bridge](#)

Course Change Request

Date Submitted: 05/03/18 4:40 pm

Viewing: **COMP SCI 5403 : Introduction to Robotics**

File: 1617.1

Last edit: 05/04/18 11:56 am

Changes proposed by: tauritzd

Other Courses
referencing this
course

In The Catalog Description:

[COMP ENG 5880 : Introduction to Robotics](#)

[ELEC ENG 5880 : Introduction to Robotics](#)

In The Prerequisites:

[COMP ENG 6880 : Advanced Topics in Robotics](#)

[COMP SCI 6403 : Advanced Topics in Robotics](#)

[ELEC ENG 6880 : Advanced Topics in Robotics](#)

Requested	Fall 2018 08/01/2014
Effective Change Date	
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	5403
Title	Introduction to Robotics
Abbreviated Course Title	Introduction to Robotics

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. 05/04/18 8:18 am
George Markowsky (markowskyg):
Approved for RCOMPSCI Chair
2. 05/04/18 11:57 am
Brittany Parnell (ershenb):

Catalog
Description

- Approved for CCC
Secretary
3. 05/09/18 1:40 pm
sraper: Approved
for Engineering
DSCC Chair
4. 05/10/18 3:35 pm
Brittany Parnell
(ershenb):
Approved for
Pending CCC
Agenda post
5. 05/31/18 3:29 pm
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
6. 05/31/18 3:29 pm
sraper: Approved
for Campus
Curricula
Committee Chair

This course provides an introduction to robotics, covering robot hardware, fundamental kinematics, trajectories, differential motion, robotic decision making, and an overview of current topics in robotics.

Prerequisites

A **grade of "C"** or better in both Math 3108 and Comp Sci **1575. ~~1510-~~**

Field Trip
Statement

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

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

Justification for
change:

Comp Sci 1510 has been renumbered as Comp Sci 1575.

Semesters
previously
offered as an
experimental
course

Co-Listed

Courses:

COMP ENG 5880 - Introduction to Robotics

ELEC ENG 5880 - Introduction to Robotics

Course Reviewer

Comments

Key: 1617

[Preview Bridge](#)

Course Change Request

New Course Proposal

Date Submitted: 04/30/18 10:06 am

Viewing: **COMP SCI 6204 : Applied Graph Theory for Computer Science**

File: 4542

Last edit: 05/03/18 11:10 am

Changes proposed by: tauritzd

Requested	Fall 2018
Effective Change Date	
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	6204
Title	Applied Graph Theory for Computer Science
Abbreviated Course Title	Applied Graph Theory

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. 04/30/18 11:12 am
George Markowsky (markowskyg):
Approved for RCOMPSCI Chair
2. 05/02/18 1:04 pm
Brittany Parnell (ershenb):

- Approved for CCC Secretary
3. 05/09/18 1:42 pm
scraper: Approved for Engineering DSCC Chair
 4. 05/10/18 3:35 pm
Brittany Parnell (ershenb):
Approved for Pending CCC Agenda post
 5. 05/31/18 3:29 pm
Brittany Parnell (ershenb):
Approved for CCC Meeting Agenda
 6. 05/31/18 3:33 pm
scraper: Approved for Campus Curricula Committee Chair

This course covers advanced concepts in graph theory and their applications. Graphs offer an excellent modeling and analysis tool for solving a wide variety of real-life problems. Emphasis will be on understanding concepts, theory, and proof techniques, and how to develop “cool” and “elegant” solutions for applications. Students will conduct projects.

Prerequisites

A grade of "C" or better in Comp Sci 5200.

Field Trip

Statement

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

No

Elective for
Majors

Yes

Justification for
new course:

This course covers important advanced material for computer science students and has been offered four times as an experimental course.

Semesters
previously
offered as an
experimental
course

FS2017, SP2016, SP2015, SP2014,

Fall 17 enrollment- 12
Spring 16 enrollment- 8
Spring 15 enrollment- 8
Spring 14 enrollment- 26

Co-Listed
Courses:

Course Reviewer
Comments

Course Change Request

Date Submitted: 04/23/18 12:35 pm

Viewing: **ELEC ENG 2120 : Circuits II**

File: 856.1

Last edit: 05/03/18 8:50 am

Changes proposed by: ferdowsi

Programs

referencing this
course

[EL ENG-MI: Minor in Electrical Engineering](#)

[CP ENG-BS: Computer Engineering BS](#)

[EL ENG-BS: Electrical Engineering BS](#)

Other Courses

referencing this
course

In The Prerequisites:

[ELEC ENG 3100 : Electronics I](#)

[ELEC ENG 3101 : Electronics I Laboratory](#)

[ELEC ENG 3250 : Electronic And Photonic Devices](#)

[ELEC ENG 3320 : Control Systems](#)

[ELEC ENG 3321 : Control Systems Laboratory](#)

[ELEC ENG 3340 : Basic Programmable Logic Controllers](#)

[ELEC ENG 3410 : Digital Signal Processing](#)

[ELEC ENG 3411 : Discrete Linear Systems Laboratory](#)

[ELEC ENG 3430 : Digital Communications I](#)

[ELEC ENG 3431 : Digital Communication Laboratory](#)

[ELEC ENG 3500 : Electromechanics](#)

[ELEC ENG 3501 : Electromechanics Laboratory](#)

[ELEC ENG 3540 : Power System Design And Analysis](#)

[ELEC ENG 3541 : Power System Design And Analysis Laboratory](#)

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. 04/23/18 6:19 pm
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 04/24/18 9:01 am
Brittany Parnell (ershenb): Approved for CCC Secretary

[ELEC ENG 3600 : Electromagnetics](#)[ELEC ENG 5440 : Stochastic Signal Analysis I](#)

Requested **Spring 2019** ~~08/01/2014~~
 Effective Change
 Date
 Department Electrical and Computer Engineering
 Discipline Electrical Engineering (ELEC ENG)
 Course Number 2120
 Title
 Circuits II
 Abbreviated Circuits II
 Course Title

Catalog
 Description

Analysis of steady state AC circuits, phasor notation, polyphase circuits, complex frequency and frequency response, magnetically coupled circuits.

Prerequisites

Elec Eng 2100 and Math 2222 each with grade of "C" or better; passing the Elec Eng Advancement Exam I.

Field Trip

Statement

Credit Hours LEC: **2.5** ~~3~~ LAB: 0 IND: 0 RSD: **0.5** ~~0~~ Total: 3
 Required for **Yes** ~~No~~
 Majors
 Elective for No
 Majors

3. 05/09/18 1:42 pm
srafer: Approved
for Engineering
DSCC Chair
4. 05/10/18 3:35 pm
Brittany Parnell
(ershenb):
Approved for
Pending CCC
Agenda post
5. 05/31/18 3:30 pm
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
6. 05/31/18 3:33 pm
srafer: Approved
for Campus
Curricula
Committee Chair

Justification for**change:**

The intention is to tie a sophomore seminar component to this course. It would be one class, but students have to sign up for both components and the two components meet at different times. A similar approach has been chosen to tie a senior seminar to EE 4096.

Semesters**previously****offered as an****experimental****course****Co-Listed****Courses:**

Course Reviewer**Comments**

sraper (05/03/18 8:50 am): Checked "Required for majors"

Key: 856

[Preview Bridge](#)

Course Change Request

New Course Proposal

Date Submitted: 04/24/18 10:14 am

Viewing: **ELEC ENG 6565 : Power System Protection II**

File: 4540

Last edit: 05/31/18 3:34 pm

Changes proposed by: dbenenat

Requested	Fall 2018
Effective Change Date	
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	6565
Title	Power System Protection II
Abbreviated Course Title	Power Sys Protection II

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. 04/25/18 9:23 am
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 04/26/18 4:33 pm
Brittany Parnell (ershenb): Approved for CCC Secretary

- 3. 05/09/18 1:42 pm
sraper: Approved
for Engineering
DSCC Chair
- 4. 05/10/18 3:35 pm
Brittany Parnell
(ershenb):
Approved for
Pending CCC
Agenda post
- 5. 05/31/18 3:34 pm
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
- 6. 05/31/18 3:36 pm
sraper: Approved
for Campus
Curricula
Committee Chair

Protective relaying advanced topics focusing on methods for generation and high voltage transmission systems; generator, motor, transformer, transmission line and bus protection; pilot protection and out of step relaying principles; and NERCPRC (Protective Relay and Control) reliability standard requirements.

Prerequisites

Elec Eng 6560.

Field Trip

Statement

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

Elective for No
Majors

Justification for
new course:

This course has been taught twice - Spring 2016 & Fall 2017.
There is a great need for relay engineers in the power industry.

Semesters
previously
offered as an
experimental
course

Spring 2016
Fall 2017

Spring 2016 enrollment- 13, distance section 2
Fall 2017 enrollment- 9, distance section 2

Co-Listed
Courses:

Course Reviewer
Comments

ershenb (05/31/18 3:34 pm): In the prerequisites, changed "Electrical Engineering 6560" to "Elec Eng 6560." Removal of "or equivalent" "consent of instructor."

Key: 4540

[Preview Bridge](#)

Course Change Request

New Course Proposal

Date Submitted: 05/10/18 4:18 pm

Viewing: **IS&T 1561 : Algorithms and Programming with Java**

File: 4547

Last edit: 05/11/18 9:31 am

Changes proposed by: barryf

Programs
referencing this
course

[IST-BS: Information Science and Tch BS](#)

Requested	Fall 2018
Effective Change Date	
Department	Business and Information Technology
Discipline	Info Science & Technology (IS&T)
Course Number	1561
Title	Algorithms and Programming with Java
Abbreviated Course Title	Algorithms and Prog Java

Catalog
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. CAT entry
11. Peoplesoft

Approval Path

1. 05/10/18 10:30
pm
siauk: Approved
for RINFSCTE
Chair
2. 05/11/18 9:31 am
Brittany Parnell
(ershenb):
Approved for CCC
Secretary

3. 05/11/18 9:36 am
Barry Flachsbart
(barryf):
Approved for
Social Sciences
DSCC Chair
4. 05/11/18 10:59
am
Brittany Parnell
(ershenb):
Approved for
Pending CCC
Agenda post
5. 05/31/18 3:35 pm
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
6. 05/31/18 3:36 pm
sraper: Approved
for Campus
Curricula
Committee Chair

Introduction to programming using Java. Topics include basic programming concepts such as variable data, decision-making, and repetitive code. Also algorithm design and analysis, event-driven design with classes and methods. Numerous programs and group exercises.

Prerequisites

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:

Return to Java course sequence as offered previously. The IST majors need Java, rather than C# (which will remain as the required course sequence for BUS students).

Course 1562 will be the second course in the sequence (separate CC Form).

Semesters

previously

offered as an

experimental

course

None -- but was the required course (numbered 51 at the time) long ago (well prior to renumbering).

Co-Listed

Courses:

Course Reviewer

Comments

Key: 4547

[Preview Bridge](#)

Course Change Request

New Course Proposal

Date Submitted: 05/10/18 4:18 pm

Viewing: **IS&T 1562 : Java and Data Structures**

File: 4548

Last edit: 05/11/18 9:31 am

Changes proposed by: barryf

Programs
referencing this
course

[IST-BS: Information Science and Tch BS](#)

Requested	Fall 2018
Effective Change Date	
Department	Business and Information Technology
Discipline	Info Science & Technology (IS&T)
Course Number	1562

Title	Java and Data Structures
Abbreviated Course Title	Java and Data Structures

Catalog
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. CAT entry
11. Peoplesoft

Approval Path

1. 05/10/18 10:30
pm
siauk: Approved
for RINFSCTE
Chair
2. 05/11/18 9:31 am
Brittany Parnell
(ershenb):
Approved for CCC
Secretary

3. 05/11/18 9:37 am
Barry Flachsbart
(barryf):
Approved for
Social Sciences
DSCC Chair
4. 05/11/18 10:59
am
Brittany Parnell
(ershenb):
Approved for
Pending CCC
Agenda post
5. 05/31/18 4:02 pm
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
6. 05/31/18 4:02 pm
sraper: Approved
for Campus
Curricula
Committee Chair

Provides an intermediate knowledge of programming using Java. Important concepts of Object Oriented programming will be covered. A significant part of the course will be devoted to data structures and how to handle them. Numerous programs will be assigned.

Prerequisites

IS&T 1561.

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 is the second course in the return to the Java sequence for IS&T majors.

Semesters
previously
offered as an
experimental
course

None, but was offered a number of years ago (as 151 -- well prior to renumbering).

Co-Listed
Courses:

Course Reviewer
Comments

Key: 4548

[Preview Bridge](#)

Program Change Request

Date Submitted: 05/01/18 2:11 pm

Viewing: **BIOINFO-MI : Bioinformatics Minor**

File: 145.9

Last approved: 07/15/15 8:15 am

Last edit: 05/01/18 2:11 pm

Changes proposed by: tauritzd

Catalog Pages Using this Program

[Bioinformatics Minor Curriculum](#)

Start Term

Fall **2018** ~~2015~~

Program Code

BIOINFO-MI

Department

Computer Science ~~Biological Sciences~~

Title

Bioinformatics Minor

Program Requirements and Description

In Workflow

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

Approval Path

1. 05/01/18 2:14 pm
David Duvernell
(duverneld):
Approved for
RBIOLSCI Chair
2. 05/02/18 9:16 am
George Markowsky
(markowskyg):
Approved for
RCOMPSCI Chair
3. 05/02/18 11:12 am
Brittany Parnell
(ershenb):
Approved for CCC
Secretary
4. 05/09/18 1:42 pm
srafer: Approved
for Engineering
DSCC Chair
5. 05/10/18 3:35 pm
Brittany Parnell
(ershenb):
Approved for
Pending CCC
Agenda post
6. 05/31/18 3:36 pm
Brittany Parnell

(ershenb):
 Approved for CCC
 Meeting Agenda
 7. 05/31/18 3:37 pm
 sraper: Approved
 for Campus
 Curricula
 Committee Chair

History

1. Apr 28, 2014 by
Katie Shannon
(shannonk)
2. Jul 14, 2015 by
pantaleoa
3. Jul 15, 2015 by
pantaleoa

Bioinformatics is the rapidly-developing field that applies computational methods to address biological questions, and includes new advances in computer science, mathematics, and biology. Students entering the field of bioinformatics should have some training in each of these fields.

The minor is designed for students pursuing a B.S. who would have the necessary prerequisites for the required courses. Students pursuing a B.A. may participate if the prerequisites for the required courses are fulfilled. Each department (biological sciences, computer science, mathematics) will designate a minor advisor. The student's minor advisor will be chosen from outside of their major area of study.

Required courses (in approximate recommended order):

BIO SCI 1113	General Biology	3
COMP SCI 1570 & COMP SCI 1580	Introduction To Programming and Introduction To Programming Laboratory	4
COMP SCI 1510	Course COMP SCI 1510 Not Found	3
COMP SCI 1575 & COMP SCI 1585	Data Structures and Data Structures Laboratory	4
BIO SCI 2213	Cell Biology	3
or BIO SCI 2223	General Genetics	
COMP SCI 2300	File Structures And Introduction To Database Systems	3
BIO SCI 4323	Molecular Genetics	3
STAT 5425	Introduction to Biostatistics	3+
or STAT 5346	Regression Analysis	
or STAT 5353	Statistical Data Analysis	
One additional course, either at the 2000-level or above in MATH or COMP SCI, or at the 3000-level or above in BIO SCI, outside of the major area of study, and as agreed upon by the minor advisor.		3+
BIO SCI 5323/COMP SCI 5700	Bioinformatics (It is strongly recommended that this course be taken after the other BIO SCI and COMP SCI requirements.)	3

STAT 4004	Special Topics	6
or STAT 5346	Regression Analysis	
or STAT 5353	Statistical Data Analysis	

~~Required courses:~~

Justification for request

Course number updates for Comp Sci 1510 and Stat 4001. Also Comp Sci 1510 under its new number of 1575 has an accompanying lab Comp Sci 1585. The only other change is formatting the list of courses to be in the recommended order the student should take them.

Supporting Documents

Course Reviewer Comments

Key: 145

Program Change Request

Date Submitted: 05/09/18 3:09 pm

Viewing: **CMP SC-PHD : Computer Science PhD**

File: 34.5

Last approved: 07/23/15 8:58 am

Last edit: 05/14/18 2:07 pm

Changes proposed by: tauritzd

Catalog Pages Using this Program

[Computer Science](#)

Start Term

Fall **2018** ~~2015~~

Program Code

CMP SC-PHD

Department

Computer Science

Title

Computer Science PhD

Program Requirements and 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. Kristy Giacomelli

Approval Path

1. 05/09/18 4:53 pm
George Markowsky (markowskyg):
Approved for RCOMPSCI Chair
2. 05/10/18 11:50 am
Brittany Parnell (ershenb):
Approved for CCC Secretary
3. 05/14/18 2:07 pm
srafer: Approved for Engineering DSCC Chair
4. 05/15/18 1:19 pm
Brittany Parnell (ershenb):
Approved for Pending CCC Agenda post
5. 05/31/18 3:37 pm
Brittany Parnell (ershenb):
Approved for CCC Meeting Agenda
6. 05/31/18 3:38 pm
srafer: Approved for Campus

History

1. Aug 5, 2014 by pantaleoa
2. Jul 23, 2015 by pantaleoa

Ph.D. in Computer Science

Application is made to the Missouri S&T admissions office along with the required transcripts and letters of recommendation. Applicants who do not have a graduate degree will normally request admission to the M.S. program first but, outstanding applications will be admitted directly into the Ph.D. program. Applicants must submit a letter outlining tentative research interests and career goals along with GRE verbal, quantitative, and analytical test scores.

Requirements for the Ph.D. in computer science include: **Qualifier examination, comprehensive examination, dissertation and defense. The qualifier examination consists of two parts: (i) pass five selected CS graduate level lecture courses and meet the GPA requirements; (ii) conduct a literature study and pass both a written exam and an oral exam. The ~~Qualifier examination over graduate level courses in core areas, research readiness presentation based on a survey of current computer science literature or research publications, comprehensive examination, and~~ dissertation **should report and defense reporting** the results of original research that meets the standards of current disciplinary journal-quality research publications. In addition, Ph.D. students are required to take and pass the graduate seminar course [COMP SCI 6010](#) for three semesters in their Ph.D. studies.**

The Ph.D. program is under the guidance of an advisory committee which is appointed no later than the semester following passage of the qualifying exam.

Justification for request

The faculty approved this change to how the CS department conducts the Ph.D. qualifier examination.

Supporting Documents

Course Reviewer Comments

sraper (05/14/18 2:07 pm): Revised from statement provided by D Tauritz and Comp Sci.

Key: 34

Program Change Request

Date Submitted: 04/26/18 10:59 am

Viewing: **EL ENG-MS : Electrical Engineering MS**

File: 163.2

Last approved: 07/23/15 9:05 am

Last edit: 05/03/18 1:48 pm

Changes proposed by: sweetk

Catalog Pages Using this Program

[Electrical Engineering](#)

Start Term

Fall **2018** ~~2015~~

Program Code

EL ENG-MS

Department

Electrical and Computer Engineering

Title

Electrical Engineering MS

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

Approval Path

1. 04/26/18 3:08 pm
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 04/30/18 2:52 pm
Brittany Parnell (ershenb): Approved for CCC Secretary
3. 05/09/18 1:42 pm
srafer: Approved for Engineering DSCC Chair
4. 05/10/18 3:35 pm
Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 05/31/18 3:39 pm
Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 05/31/18 4:01 pm
srafer: Approved for Campus

History

1. Jul 23, 2015 by
pantaleoa

Program Requirements

Additional departmental requirements beyond those stated in the section on Admission and Program Procedures are as follows. Thesis option M.S. programs of study require a minimum of 21 credit hours of course work exclusive of credit hours earned for thesis research (courses numbered **5099**, ~~400~~). A limited number of credit hours for **3000** ~~200~~-level courses may be counted towards the fulfillment of a M.S. program of study, provided that the courses are taken outside of the electrical and computer engineering department and that the courses are pre-requisites for at least one **5000** ~~300~~ or **6000** ~~400~~-level course also included in the program of **study**. **An M.S. advisory committee may impose additional requirements or restrictions as it sees fit.** ~~study.~~

~~The doctoral program of study, for the Ph.D.degree or the D.E.degree, should include 90 credit hours beyond the B.S.degree or 60 credit hours beyond the M.S.degree. An M.S. or doctoral student's advisory committee may impose additional requirements or restrictions as it sees fit.~~

Justification for request

Replaced the old 3 numbered courses

Supporting Documents

Course Reviewer Comments

ershenb (04/30/18 2:52 pm): updated start term to fall 2018

sraper (05/03/18 1:48 pm): Removed language speaking to doctoral or phd. Per K erickson.

Key: 163

Program Change Request

Date Submitted: 05/01/18 3:36 pm

Viewing: **ECON-BA : Economics BA**

File: 38.15

Last approved: 08/14/17 12:34 pm

Last edit: 05/31/18 3:52 pm

Changes proposed by: marcys

Catalog Pages Using this Program

[Economics](#)

Start Term

Fall 2018 ~~08/22/2016~~

Program Code

ECON-BA

Department

Economics

Title

Economics BA

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**

Approval Path

1. 05/01/18 4:50 pm
Gregory Gelles
(gelles): Approved
for RECONOMI
Chair
2. 05/03/18 1:32 pm
Brittany Parnell
(ershenb):
Approved for CCC
Secretary
3. 05/09/18 1:04 pm
Barry Flachsbar
(barryf): Approved
for Social Sciences
DSCC Chair
4. 05/10/18 3:35 pm
Brittany Parnell
(ershenb):
Approved for
Pending CCC
Agenda post
5. 05/31/18 3:55 pm
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
6. 05/31/18 4:01 pm
sraper: Approved

History

1. Aug 14, 2014 by
Lahne Black (lahne)
2. Jul 20, 2015 by
pantaleoa
3. Nov 18, 2015 by
Marcy Scott
(marcys)
4. Aug 14, 2017 by
Crystal Wilson
(wilsoncry)

Bachelor of Arts Economics

In addition to the general university requirements for a bachelor of arts degree, a student must complete:

1. [ECON 1100](#), [ECON 1200](#), [ECON 2100](#) and [ECON 2200](#) with a minimum grade of "C" in each.
2. At least 18 additional hours of economics electives, at or above the 2000 level, with a minimum grade of "C" in each.
3. [BUS 1210](#); and [STAT 1115](#) or [ECON 1300](#); and [ECON 4300](#). ~~[ECON 2300](#)~~

Bachelor of Arts Economics (Secondary Education Emphasis Area)

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

In order to successfully complete this emphasis area, students must ~~have at least a 22 ACT,~~ maintain a cumulative GPA of at least **2.75**, ~~2.5~~, and attain at least a **3.0** ~~2.5~~ GPA in **content courses and Professional EDUC** ~~all economics~~ 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 **section program** of 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 course work.

A degree in this emphasis area requires **136-138** ~~120~~ credit hours. The required courses are provided below. A minimum grade of "C" is required by the department in all mathematics and statistics courses counted toward this degree.

Communications Skills: 9 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

Humanities: 9 semester hours		
Must include 9 hours from each of the following 3 areas: Art, Music or Theatre, Philosophy, Literature		9
Social Sciences: 18 semester hours		
HISTORY 1300	American History To 1877	3
HISTORY 1310	American History Since 1877	3
HISTORY 2110	World Regional Geography	3
HISTORY 4435	History of the American West	3
ECON 2300	Course ECON 2300 Not Found	3
POL SCI 1200	American Government	3
PSYCH 1101	General Psychology	3
PSYCH 4600	Social Psychology	3
Natural Sciences: 7 semester hours (including 1 lab)		
Physics or Geology w/Lab		4
BIO SCI 1113	General Biology	3
Mathematics: 3 semester hours		
MATH 1120	College Algebra	3-5
or MATH 1140	College Algebra	
or higher		
Professional Requirements: 26 semester hours		
EDUC 1040	Perspectives In Education	2
EDUC 1174	School Organization & Adm For Elementary & Secondary Teachers	2
EDUC 2254	Historical Foundation Of American Education	3
EDUC 3216	Teaching Reading in Content Area	3
EDUC 3280	Teaching Methods And Skills In The Content Areas	6
EDUC 4298	Student Teaching Seminar	1
ENGLISH 3170	Teaching And Supervising Reading and Writing	3
PSYCH 2300	Educational Psychology	3
or EDUC 2102	Educational Psychology	
PSYCH 3314	Psychological & Educational Development Of The Adolescent	3
PSYCH 3310	Developmental Psychology	3
PSYCH 4310	Psychology Of The Exceptional Child	3
or EDUC 4310	Psychology Of The Exceptional Child	
Clinical Experience: 16 semester hours		
EDUC 1104	Teacher Field Experience	2
EDUC 1164	Aiding Elementary, Middle And Secondary Schools	2
EDUC 4299	Student Teaching	12
Economics: 30 semester hours		
ECON 1100	Principles Of Microeconomics	3
ECON 1200	Principles Of Macroeconomics	3

ECON 2100	Intermediate Microeconomic Theory	3
ECON 2200	Intermediate Macroeconomic Theory	3
ECON 4300	Research Methods and Applications in Economics and Business	3
Econ Electives (3000 or 4000 level)		12
BUS 1210	Financial Accounting	3
Certification: 18 semester hours		
HISTORY 1100	Early Western Civilization	3
or HISTORY 1200	Modern Western Civilization	
HISTORY 2220	Making Of Modern Britain	3
or HISTORY 2222	The Making Of Modern France	
or HISTORY 2224	Making Of Modern Russia	
or HISTORY 2210	European Diplomatic History 1814--Present	
or HISTORY 3120	Ancient Greece	
or HISTORY 3130	Medieval History I	
or HISTORY 3135	Medieval History II	
or HISTORY 3140	History Of Renaissance Thought	
or HISTORY 3230	Europe In The Age Of The French Revolution And Napoleon	
or HISTORY 3235	Foundations Of Contemporary Europe 1815-1914	
or HISTORY 3240	Contemporary Europe	
HISTORY 3320	Colonial America	3
or HISTORY 3325	Revolutionary America, 1754-1789	
or HISTORY 3340	Age Of Jefferson And Jackson	
or HISTORY 3345	Civil War And Reconstruction	
or HISTORY 3360	Recent United States History	
or HISTORY 3450	American Intellectual History II	
or HISTORY 3425	History Of The Old South	
or HISTORY 3426	History Of The Modern South	
or HISTORY 3430	Course HISTORY 3430 Not Found	
or HISTORY 3480	History Of Baseball	
or HISTORY 3440	20th Century Americans In Combat	
or HISTORY 3441	The United States In World War II	
or HISTORY 3442	The United States in Vietnam	
or HISTORY 3761	U.S. Diplomatic History to World War II	
or HISTORY 3762	American Foreign Policy Since 1945	
POL SCI 3760	The American Presidency	3
Am History (from approved DESE list)		6
European History (from approved DESE list)		9
Upper Pol Sci (from approved DESE list)		3

Justification for request

Updating Secondary Education Economics emphasis area due to requirement changes and/or updates made by Department of Elementary and Secondary Education (DESE). Also updating any course number changes.

Supporting Documents

Course Reviewer Comments

ershenb (05/31/18 3:52 pm): Changed credit hours from "9" to "12" on "Econ Electives (3000 or 4000 level)."

Key: 38

Program Change Request

Date Submitted: 03/24/18 8:21 am

Viewing: **IST-BS : Information Science and Tch BS**

File: 75.23

Last approved: 04/21/17 1:34 pm

Last edit: 05/11/18 10:31 am

Changes proposed by: barryf

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

Start Term

Fall 2018 ~~08/22/2016~~

Program Code

IST-BS

Department

Business and Information Technology

Title

Information Science and Tch BS

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

Approval Path

1. 03/28/18 6:00 pm
siauk: Approved for RINFSCTE Chair
2. 03/29/18 9:58 am
Brittany Parnell (ershenb): Approved for CCC Secretary
3. 03/29/18 7:52 pm
Barry Flachsbart (barryf): Approved for Social Sciences DSCC Chair
4. 04/17/18 10:15 am
Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 05/10/18 4:36 pm
Brittany Parnell (ershenb): Rollback to RINFSCTE Chair for CCC Meeting Agenda
6. 05/10/18 10:31 pm
siauk: Approved for RINFSCTE Chair

7. 05/11/18 9:11 am
Brittany Parnell
(ershenb):
Approved for CCC
Secretary
8. 05/11/18 9:37 am
Barry Flachsbart
(barryf): Approved
for Social Sciences
DSCC Chair
9. 05/11/18 10:59 am
Brittany Parnell
(ershenb):
Approved for
Pending CCC
Agenda post
10. 05/31/18 3:55 pm
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
11. 05/31/18 4:01 pm
srafer: Approved
for Campus
Curricula
Committee Chair

History

1. Apr 28, 2014 by
Barry Flachsbart
(barryf)
2. Jan 30, 2015 by
Barry Flachsbart
(barryf)
3. Jul 21, 2015 by
pantaleoa
4. Jul 21, 2015 by
pantaleoa
5. Jul 28, 2015 by
kleb6b
6. Mar 7, 2016 by
Barry Flachsbart
(barryf)
7. Apr 21, 2017 by
Crystal Wilson
(wilsoncry)

In Information Science and Technology, the Bachelor of Science degree consists of 120 credit hours. All undergraduate students in Business and Management Systems are required to complete a General Education Requirements Core, including courses in Humanities, Social Sciences, Mathematics, Science, and Communication Skills.

A common departmental core of courses in Management and Information Technology helps provide students with skills to succeed in a fast-changing and globalized environment. Information Science and Technology (IST) Core courses and IST Electives provide students with comprehensive knowledge of information technology utilization in businesses. These courses include business analytics & data science, database management, systems analysis, introduction to data science and management, computing internals, networks and communications, and electronic and mobile commerce. The electives for this degree consist of advanced coursework in the areas introduced by the required courses.

A minimum grade of "C" is required in the IST Core, IST Electives, Management, and Information Technology courses. Students have 9 credit hours for free electives.

Freshman Year			
First Semester	Credits	Second Semester	Credits
BUS 1810 ¹	1	PSYCH 1101	3
ENGLISH 1120	3	MATH 1212	4
MATH 1140 ⁵	3	IS&T 1554	3
Science Elective ²	3	IS&T 1561	3
IS&T 1750	3	BUS 1110	3
Laboratory w/Science Elective	1	BUS 1210	3
	14		16
Sophomore Year			
First Semester	Credits	Second Semester	Credits
ECON 1200	3	IS&T 3131	3
SP&M S 1185	3	Science Elective ²	3
IS&T 1552	3	IS&T Elective ⁴	3
IS&T 1562	3	STAT 3111	3
ENGLISH 1600 or TCH COM 1600	3	ECON 1100	3
ERP 2110	3		
	15		15
Junior Year			
First Semester	Credits	Second Semester	Credits
IS&T 4654	3	IS&T 3343	3
FINANCE 2150	3	MKT 3110	3
IS&T 3423	3	IS&T 3420	3
IS&T 3333	3	IS&T 4641	3
IS&T Elective ⁴	3	ENGLISH 2560 or TCH COM 2560	3
	15		15
Senior Year			
First Semester	Credits	Second Semester	Credits
Free Elective	3	BUS 5980	3

Fine Art, Social Science, or Humanities Elective ³	3	POL SCI 1200	3
IS&T Electives ⁴	6	IS&T Elective ⁴	3
History Elective	3	Free Electives	6
	15		15
Total Credits: 120			

A grade of "C" or better is required in the following courses for graduation; [BUS 1110](#) ~~BUS 1110~~, [BUS 1210](#) ~~BUS 1210~~, [BUS 1810](#) ~~BUS 1810~~, [BUS 5980](#) ~~BUS 5980~~, [ECON 1100](#) ~~ECON 1100~~, [ECON 1200](#) ~~ECON 1200~~, [ERP 2110](#) ~~ERP 2110~~, [FINANCE 2150](#), [MKT 3110](#), [IS&T 1561](#), [IS&T 1562](#) ~~MKT 3110~~, [IS&T 1750](#) ~~IS&T 1551~~, [IS&T 3131](#), [IS&T 3333](#), [IS&T 3343](#) ~~IS&T 1552~~, [IS&T 3420](#) ~~IS&T 1750~~, [IS&T 3423](#), [IS&T 4641](#), [IS&T 4654](#), ~~IS&T 3131~~, ~~IS&T 3333~~, ~~IS&T 3343~~, ~~IS&T 3420~~, ~~IS&T 3423~~, ~~IS&T 4641~~, ~~IS&T 4654~~, and all [IS&T](#) ~~IST~~ Electives.

1	Writing intensive course
2	Any course in the following areas: biology, chemistry, geology, geological engineering, physics.
3	Any course in the following areas not used for other degree requirements: art, economics, English, foreign language, history, literature, music, philosophy, political science, psychology, sociology, theater.
4	A grade of "C" or better is required in IS&T elective courses for graduation. Electives may be any IS&T or ERP designated course at the 3000-level or above or COMP SCI 4700 or COMP SCI 5601 .
5	MATH 1120 may be substituted for MATH 1140 .

~~Emphasis Areas Two emphasis areas may be taken to specialize if the student wishes to do so. The first, human computer interaction, consists of three courses: The second emphasis area, enterprise resource planning, consists of any 9 hours of ERP designated courses at the 4000 level or above.~~

IS&T 5885	Human Computer Interaction	3
IS&T 5886	Prototyping Human Computer Interactions	3
IS&T 5887	Human Computer Interaction Evaluation	3

Justification for request

Remove Emphasis Areas. Minors exists for each of the existing Emphasis Areas and provide a better focus for students.

Clarify that IS&T electives may include courses at the 3000 level.

Supporting Documents

Course Reviewer Comments

ershenb (03/29/18 9:58 am): Updated Start Term to Fall 2018

barryf (03/29/18 7:52 pm): Clarify that IS&T electives may include IS&T or ERP designated courses at the 3000 level or above, as well as two specific COMP SCI courses.

ershenb (05/10/18 10:00 am): Per the request of Dr. Flachsbar, replaced IS&T 1551 with IS&T 1561. Replace IS&T 1552 with IS&T 1562. (These are edits for the 5/31/18 curricula meeting.)

ershenb (05/10/18 10:07 am): Accompanying new course proposals will be submitted for IS&T 1561 and 1562.

ershenb (05/10/18 4:31 pm): .

ershenb (05/10/18 4:36 pm): Rollback: Per the request of Dr. Flachsbar, additional edits were made to

the IS&T BS. Replacing IS&T 1551 with 1561. Replacing IS&T 1552 with 1562. These edits are for the May 31st curricula meeting.

ershenb (05/11/18 9:05 am): linked IS&T 1561 and 1562 in the "a grade of C or better is required for graduation" section.

ershenb (05/11/18 10:31 am): removed 1551 and 1552 from the "C or better section" per the request of Dr. Flachsbart.

ershenb (05/11/18 10:31 am): .

Key: 75

Course Change Request

New Experimental Course Proposal

Date Submitted: 04/26/18 11:27 am

Viewing: **ELEC ENG 5001.006 : Microgrids
Systems and Architectures**

File: 4541

Last edit: 05/08/18 1:46 pm

Changes proposed by: sweetk

Requested	Spring 2019
Effective Change Date	
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	5001
Topic ID	006
Experimental Title	Microgrids Systems and Architectures
Experimental Abbreviated Course Title	Microgrids
Instructors	Mariesa Crow

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. 04/26/18 3:09 pm
Daryl Beetner
(daryl): Approved
for RELECENG
Chair
2. 04/30/18 2:56 pm
Brittany Parnell
(ershenb):
Approved for CCC
Secretary
3. 05/09/18 1:42 pm
sraper: Approved
for Engineering
DSCC Chair

4. 05/10/18 3:35 pm
Brittany Parnell
(ershenb):
Approved for
Pending CCC
Agenda post
5. 05/31/18 3:56 pm
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
6. 05/31/18 4:01 pm
sraper: Approved
for Campus
Curricula
Committee Chair
7. 06/04/18 9:23 am
Marita Tibbetts
(tibbettsmg):
Approved for CAT
entry

Microgrids are power distribution systems with distributed (and often renewable) energy sources, storage devices and controllable loads, operated connected to the main power network or islanded, in a controlled, coordinated way. The course will focus on the system architectures and operation of microgrids. Specific topics include communication and control.

Prerequisites

Elec Eng 3500 or Elec Eng 3540.

Field Trip

Statement

Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

Total: 3

Justification for
new course:

Justification for new course. This is intended to be one course in a two course series – Microgrid Architectures and Operation (course 1) and Microgrid Components and Control (course 2). The courses can be taken in any order – one will be offered in Fall and the other in Spring. We are hoping to develop a new Graduate Certificate program in Microgrid Systems and Renewable Energy. One of the other power faculty will develop the second course.

Semester(s)
previously taught

Co-Listed
Courses:

Course Reviewer
Comments

sraper (05/03/18 1:49 pm): grammar edit per K Erickson.

Key: 4541

[Preview Bridge](#)

Course Change Request

New Experimental Course Proposal

Date Submitted: 03/08/18 4:43 pm

Viewing: **EXP ENG 5001.001 : Underwater Blasting**

File: 4532

Last edit: 05/08/18 1:47 pm

Changes proposed by: pworsey

Requested	Fall 2018
Effective Change Date	
Department	Mining & Nuclear Engineering
Discipline	Explosives Engineering (EXP ENG)
Course Number	5001
Topic ID	001
Experimental Title	Underwater Blasting
Experimental Abbreviated Course Title	Underwater Blasting
Instructors	Dr. Calvin Konya

Experimental Catalog Description

In Workflow

1. **RMINNUCL 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. 05/04/18 11:10 am
Braden lusk (blusk): Approved for RMINNUCL Chair
2. 05/04/18 11:58 am
Brittany Parnell (ershenb): Approved for CCC Secretary
3. 05/09/18 1:40 pm
srafer: Approved for Engineering

- DSCC Chair
4. 05/10/18 3:35 pm
Brittany Parnell
(ershenb):
Approved for
Pending CCC
Agenda post
 5. 05/31/18 3:56 pm
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
 6. 05/31/18 4:01 pm
sraper: Approved
for Campus
Curricula
Committee Chair
 7. 06/04/18 9:24 am
Marita Tibbetts
(tibbettsmg):
Approved for CAT
entry

Concepts of underwater blasting so that students will be able to effectively design, implement, and monitor the blasting process underwater on large construction projects, with no previous knowledge of blasting.

Prerequisites

Senior standing.

Field Trip

Statement

No field trip required.

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

Justification for
new course:

Explosives graduate students have been requesting an underwater blasting class and this course will teach mining, explosives and civil engineering students with no previous knowledge of explosives, the concepts of underwater blasting.

Semester(s)
previously taught

Co-Listed
Courses:

Course Reviewer
Comments

Key: 4532

[Preview Bridge](#)

Course Change Request

New Experimental Course Proposal

Date Submitted: 03/22/18 6:18 pm

Viewing: **EXP ENG 6001.004 : Post Blast Forensic Analysis**

File: 4536

Last edit: 05/31/18 3:58 pm

Changes proposed by: pworsey

Requested Fall 2018

Effective Change
Date

Department Mining & Nuclear Engineering

Discipline Explosives Engineering (EXP ENG)

Course Number 6001

Topic ID 004

Experimental
Title
 Post Blast Forensic Analysis

Experimental Blast Forensic Analysis

Abbreviated
Course Title

Instructors Dr. Catherine Johnson

Experimental
Catalog
Description

In Workflow

1. **RMINNUCL 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. 05/04/18 11:10 am
 Braden lusk (blusk): Approved for RMINNUCL Chair
2. 05/04/18 12:06 pm
 Brittany Parnell (ershenb): Approved for CCC Secretary
3. 05/09/18 1:41 pm
 sraper: Approved for Engineering

- DSCC Chair
4. 05/10/18 3:36 pm
Brittany Parnell
(ershenb):
Approved for
Pending CCC
Agenda post
 5. 05/31/18 3:58 pm
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
 6. 05/31/18 4:01 pm
sraper: Approved
for Campus
Curricula
Committee Chair
 7. 06/04/18 9:25 am
Marita Tibbetts
(tibbettsmg):
Approved for CAT
entry

Detailed investigation of a blast site reveals crucial clues as to the location, type of explosive charge and possible homemade explosive precursors that can lead to solving a crime. Thoroughly documenting the scene including structural damage, injuries and post blast residue will be conducted.

Prerequisites

Graduate standing.

Field Trip

Statement

Credit Hours

LEC: 2

LAB: 1

IND: 0

RSD: 0

Total: 3

Justification for
new course:

Course will be based on previous course taught in conjunction with Fort Leonard Wood. Guest lectures from forensics experts will accompany explosives faculty.

Semester(s)
previously taught

Co-Listed
Courses:

Course Reviewer
Comments

ershenb (05/31/18 3:58 pm): changed effective date to "Fall 18."

Key: 4536

[Preview Bridge](#)

Course Change Request

New Experimental Course Proposal

Date Submitted: 05/07/18 12:22 pm

Viewing: **HISTORY 3001.005 : Slavery and Abolition in the Atlantic World**

File: 4546

Last edit: 05/31/18 4:01 pm

Changes proposed by: popejj

Requested	Spring 2019
Effective Change Date	
Department	History and Political Science
Discipline	History (HISTORY)
Course Number	3001
Topic ID	005
Experimental Title	Slavery and Abolition in the Atlantic World
Experimental Abbreviated Course Title	Slavery and Abolition
Instructors	Pope

Experimental 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. CAT entry
8. Registrar

Approval Path

1. 05/07/18 12:33 pm
sfogg: Approved for RHISTORY Chair
2. 05/08/18 9:39 am
Brittany Parnell (ershenb): Approved for CCC Secretary
3. 05/09/18 12:05 pm
Petra Dewitt (dewittp):

- Approved for Arts
& Humanities
DSCC Chair
4. 05/10/18 3:36 pm
Brittany Parnell
(ershenb):
Approved for
Pending CCC
Agenda post
5. 05/31/18 4:01 pm
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
6. 05/31/18 4:02 pm
sraper: Approved
for Campus
Curricula
Committee Chair
7. 06/04/18 9:36 am
Marita Tibbetts
(tibbettsmg):
Approved for CAT
entry

This course explores the role of slavery in the history of the Americas, Europe, and Africa. Focusing on the development of “New World Slavery,” students will be able to critique the extent to which Atlantic slavery influenced the history of race, capitalism, and liberty in the early modern period.

Prerequisites

Hist 1100, 1200, 1300, or 1310.

Field Trip

Statement

Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

Total: 3

Justification for

new course:

Missouri S&T does not currently have a history of slavery course offering. Because the historical legacy of slavery has influenced American and world history throughout the modern era, students should have the opportunity to examine the topic in an upper-level history class. I have taught a version of this course at Brown University and Beloit College.

Semester(s)

previously taught

Co-Listed

Courses:

Course Reviewer

Comments

dewittp (05/09/18 12:05 pm): Moved comment about when taught the course from "Semester previously taught" to "Justification."

ershenb (05/31/18 4:01 pm): removed "or" from prerequisite and added commas between each course.

Key: 4546

[Preview Bridge](#)

Course Change Request

New Experimental Course Proposal

Date Submitted: 05/04/18 11:07 am

Viewing: **NUC ENG 6001.005 : Nuclear RELAP5**

Thermal Hydraulic Analysis

File: 4545

Last edit: 05/31/18 4:03 pm

Changes proposed by: gmueller

Requested Fall 2018

Effective Change

Date

Department Mining & Nuclear Engineering

Discipline Nuclear Engineering (NUC ENG)

Course Number 6001

Topic ID 005

Experimental

Title

Nuclear RELAP5 Thermal Hydraulic Analysis

Experimental Nuclear RELAP5 Analysis

Abbreviated

Course Title

Instructors Gary Mueller

Experimental

Catalog

Description

In Workflow

1. **RMINNUCL 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. 05/04/18 11:11 am
Braden lusk (blusk): Approved for RMINNUCL Chair
2. 05/04/18 12:10 pm
Brittany Parnell (ershenb): Approved for CCC Secretary
3. 05/09/18 1:41 pm
srafer: Approved for Engineering

- DSCC Chair
4. 05/10/18 3:36 pm
Brittany Parnell
(ershenb):
Approved for
Pending CCC
Agenda post
5. 05/31/18 4:03 pm
Brittany Parnell
(ershenb):
Approved for CCC
Meeting Agenda
6. 05/31/18 4:12 pm
sraper: Approved
for Campus
Curricula
Committee Chair
7. 06/04/18 9:21 am
Marita Tibbetts
(tibbettsmg):
Approved for CAT
entry

The Reactor Excursion and Leak Analysis Program (RELAP5) is a transient analysis code developed for the Nuclear Regulatory Commission (NRC) for simulating a wide variety of hydraulic and thermal transients in nuclear systems. The course will use RELAP5 to model a real life nuclear system and analyze a particular nuclear transient.

Prerequisites

Nuc Eng 4203 and Nuc Eng 4229.

Field Trip

Statement

None

Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

Total: 3

Justification for
new course:

Nuclear engineers regularly utilize RELAP5 for thermal hydraulic safety analysis, including pre test prediction and post test evaluation of nuclear systems.

Semester(s)
previously taught
None

Co-Listed
Courses:

Course Reviewer

Comments

ershenb (05/31/18 4:03 pm): edited course description - "z" instead of an "s" in the word "analyze."

Key: 4545

[Preview Bridge](#)

Program Change Request

Date Submitted: 04/06/18 10:05 am

Viewing: **PE ENG-BS : Petroleum Engineering
BS**

File: 108.17

Last approved: 09/21/15 10:17 am

Last edit: 05/15/18 4:12 pm

Changes proposed by: caolila

Catalog Pages Using this Program

[Petroleum Engineering](#)

Start Term

Fall 2018 ~~08/22/2016~~

Program Code

PE ENG-BS

Department

Geosciences and Geological and Petroleum Engineering

Title

Petroleum Engineering BS

Program Requirements and Description

In Workflow

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

Approval Path

1. 04/06/18 10:46 am
David Borrok
(borrok): Approved
for RGEOENG
Chair
2. 04/11/18 3:54 pm
Brittany Parnell
(ershenb):
Approved for CCC
Secretary
3. 04/11/18 4:14 pm
Brittany Parnell
(ershenb): Rollback
to CCC Secretary
for Sciences DSCC
Chair
4. 04/12/18 10:11 am
Brittany Parnell
(ershenb):
Approved for CCC
Secretary
5. 04/20/18 10:09 am
Katie Shannon
(shannonk):
Approved for
Sciences DSCC

Chair

6. 04/25/18 8:23 am
 sraper: Approved
 for Engineering
 DSCC Chair

7. 04/25/18 10:06 am
 Brittany Parnell
 (ershenb):
 Approved for
 Pending CCC
 Agenda post

8. 05/31/18 4:04 pm
 Brittany Parnell
 (ershenb):
 Approved for CCC
 Meeting Agenda

9. 05/31/18 4:12 pm
 sraper: Approved
 for Campus
 Curricula
 Committee Chair

History

1. [Sep 21, 2015](#) by
[reflori](#)

Bachelor of Science Petroleum Engineering

Entering freshmen desiring to study Petroleum Engineering will be admitted to the Freshman Engineering Program. They will, however, be permitted, if they wish, to state a Petroleum Engineering preference, which will be used as a consideration for available freshman departmental scholarships. The focus of the Freshman Engineering Program is on enhanced advising and career counseling, with the goal of providing to the student the information necessary to make an informed decision regarding the choice of a major. A grade point average of 2.80 or higher is required to enter the Petroleum Engineering program from the Freshman Engineering Program.

For the Bachelor of Science degree in Petroleum Engineering a minimum of 129 credit hours is required. These requirements are in addition to credit received for algebra, trigonometry, and basic ROTC courses. A student must maintain at least two grade points per credit hour for all courses taken in Petroleum Engineering.

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

1. Six credit hours of English: All students are required to take [ENGLISH 1120](#) and either ENGLISH 3560 (preferred) or ENGLISH 1160 or ENGLISH 1600.
2. Nine credit hours of basic humanities and social sciences: All students are required to take one history course, one economics course and one humanities course. The history course is to be selected from [HISTORY 1200](#), [HISTORY 1300](#), [HISTORY 1310](#), ~~HISTORY 1200~~, ~~HISTORY 1300~~, ~~HISTORY 1310~~, or [POL SCI 1200](#). ~~POL-SCI 1200~~. The economics course may be either [ECON 1100](#) ~~ECON 1100~~ or [ECON 1200](#). **The humanities course selected must meet requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog.**

3. ~~The humanities course must be selected from "The Approved List of Humanities and Social Science Courses for Engineering Degrees" maintained by the Office of Undergraduate Studies.~~ Three credit hours as a depth requirement. Three credit hours must be taken in humanities or social sciences at the 2000-level or above and **meet requirements as specified under "Engineering Degree Requirements" published in ~~must be selected from~~ the current undergraduate catalog. approved list.** This course must have as a prerequisite one of the humanities or social sciences courses already taken. Foreign language courses numbered 1180 will be considered to satisfy this requirement. Students may receive humanities credit for foreign language courses in their native tongue only if the course is at the 4000-level. All courses taken to satisfy the depth requirement must be taken after graduating from high school.
4. Three credit hours of elective humanities and social sciences **must meet requirements as specified under "Engineering Degree Requirements" published in ~~from~~ the current undergraduate catalog.. approved list.**
5. Special topics and special problems and honors seminars are allowed only by petition to and approval by the student's department chair.

The Petroleum Engineering program at Missouri S&T consists of a strong foundation in math, sciences and engineering fundamentals, plus strong content in the traditional Petroleum Engineering core areas of drilling, production and reservoir engineering. Two unique features of the curriculum are a strong sequence of courses in Geology and Geophysics, plus a two course sequence in finite element analysis and mechanical earth modeling. S&T Petroleum Engineering students are prepared to solve today's problems and tomorrow's. Students learn theory, have ample hands-on experiences in laboratories, and they learn many modern software packages used by the petroleum industry.

Students planning on majoring in petroleum engineering should take the following courses.

Freshman Year			
First Semester	Credits	Second Semester	Credits
FR ENG 1100	1	MATH 1215	4
CHEM 1310	4	PHYSICS 1135	4
CHEM 1319	1	MECH ENG 1720	3
MATH 1214	4	GEO ENG 1150 or GEOLOGY 1110 and GEOLOGY 1119	3-4
HISTORY 1200 , or 1300 , or 1310 , or POL SCI 1200	3	GEO ENG 1119	4
ENGLISH 1120	3	PET ENG 2510	3
	16		17-18
Sophomore Year			
First Semester	Credits	Second Semester	Credits
MATH 2222	4	MATH 3304	3
PHYSICS 2135	4	PET ENG 3520	3
GEOLOGY 3310 (Geol 3319 lab optional)	3	MECH ENG 2350	2
PET ENG 3320 ⁷	3	CIV ENG 2210	3
CIV ENG 2200	3	GEOLOGY 3620	3
		ECON 1100 or 1200	3
	17		17
Junior Year			
First Semester	Credits	Second Semester	Credits
GEOLOGY 5513	3	PET ENG 3330	3
GEOPHYS 4231	3	PET ENG 4410	3
CIV ENG 3330	3	PET ENG 4590	3
PET ENG Reservoir Engineering Elective ⁴	3	PET ENG 4710	3

PET ENG 4210	3	Humanities/Social Sci Elective ²	3
	15		15
Senior Year			
First Semester	Credits	Second Semester	Credits
PET ENG 4010 ³	1	PET ENG 4097 ⁷	3
MECH ENG 2527	3	GEO ENG 4115	3
PET ENG 4520	3	Hum/Soc Sci Elective ²	3
PET ENG 4720	3	PET ENG Elective ⁵	3
PET ENG Elective ⁵	3	ENGLISH 3560 ⁶	3
Humanities/Social Sci Elective ²	3		
	16		15
Total Credits: 128-129			

¹ All freshmen Petroleum Engineering students must enroll in [CHEM 1100](#).

² Humanities/Social Science electives are to be selected from a list of approved courses as published by the department. Petroleum Engineering students are especially encouraged to study foreign languages

³ All Petroleum Engineering students must take the Fundamentals of Engineering Examination prior to graduation. A passing grade on this examination is not required to earn a B.S. degree, however, it is the first step to becoming a registered professional engineer. This requirement is part of Missouri S&T assessment process as described in Assessment Requirements found elsewhere in this catalog.

⁴ This is a reservoir engineering elective. Students should choose from [PET ENG 4511](#), [PET ENG 4531](#), [PET ENG 4611](#), [PET ENG 4311](#), or [PET ENG 4621](#).

⁵ Select Petroleum Engineering electives in accordance with interest area. Students interested in reservoir engineering select from topics in advanced reservoir engineering, simulation, natural gas engineering, and formation characterization. Students interested in drilling/completions and production select petroleum electives such as advanced drilling, well completions, stimulation. Other general interest petroleum electives may be selected as available.

⁶ Students may also select [ENGLISH 1160](#) or [ENGLISH 1600](#).

⁷ **Communications emphasis courses.**

The total number of credit hours required for a degree in Petroleum Engineering is 129.

Petroleum Engineering students must earn the grade of "C" or better in all Petroleum Engineering courses to receive credit toward graduation.

Justification for request

Requesting footnote 7 added to comments of current curriculum as shown in attachment. Prior to 2015 change the curriculum had Pet Eng 1110 (1 hr introduction to Pet Eng) and Pet Eng 3529 (1 hr lab) as communication emphasis. Pet Eng 1110 was dropped in 2015 and Pet Eng 3529 was rolled into the new petrophysics course, Pet Eng 3320. Pet Eng 3320 should replace the two previous courses under the communications requirement in DAR. Senior capstone Pet Eng 4097 continues to be communications emphasis. I couldn't figure out the online editing but the attached document shows the changes requested.

Supporting Documents

Curriculum Petroleum(2018-19) for comm emphasis.xls

Course Reviewer Comments

lahne (04/17/17 12:29 pm): Rollback: rollback to correct workflow, PE ENG-BS should not go through Sciences DSCC

sraper (04/18/17 8:25 am): Rollback: Replace ME 1720 with Cs course. Needs further discussion at CEC level.

lahne (04/19/17 9:39 am): Rollback: sraper (04/18/17 8:25 am): Rollback: Replace ME 1720 with CS course. Needs further discussion at CEC level.

ershenb (08/22/17 9:11 pm): updated start term to Fall 2018

sraper (09/19/17 2:24 pm): Rollback: I talked to Ralph Flori today and he did not know the DC was put through again. They do not intend to make the change shown (CSC for ME 1720).

ershenb (09/19/17 3:01 pm): Rollback: Please update MECH ENG 1720 requirement.

ershenb (04/06/18 10:29 am): Attaching curriculum petroleum-communication emphasis per the request of Dr. Shari Dunn-Norman.

ershenb (04/06/18 11:00 am): Per the request of Dr. Shari Dunn-Norman, added footnote 7 Communications emphasis courses

ershenb (04/06/18 11:07 am): Per the request of Dr. Shari-Dunn Norman, added footnote 7 to Pet Eng 4097 and Pet Eng 3320.

ershenb (04/11/18 4:14 pm): Rollback: Pet Eng-BS should not go through Sciences DSCC. Workflow needs adjusted.

ershenb (04/12/18 10:09 am): Any degree forms under the GGPE are approved through both the Sciences and Engineering DSCC.

sraper (04/25/18 8:23 am): Made edits to remove references to "Approved List". Removed Comp Sci programming classes and put Me 1720 back in. Removed requirement to sign release of FE results.

ershenb (04/26/18 1:52 pm): formatting

ershenb (05/15/18 2:04 pm): Per the request of Dr. Shari, edited Freshman Year, second semester as follows: GEO ENG 1150 or GEOLOGY 1110 and GEOLOGY 1119.

ershenb (05/15/18 4:12 pm): .

Key: 108

Minor Creation Policy Ad Hoc Committee Report

Introduction

The purpose for the Experimental Course (EC) process is to allow for development of modern degrees via new course content but also to help determine marketability and viability/cost effectiveness of the new courses. New or substantially different degree programs are subject to degree viability justification and approval by state agencies. New course creation can skip the EC process by making the course to be required within a degree program. Minor and certificate programs are useful marketing tools that exemplify uniqueness and value of the S&T campus to attract students but are elective and supportive to a program of study, not degree programs in their own right.

Course viability is subject to the Chancellor Policy Memo II-30, as well as the respective policies of each college. While course enrollments of courses being developed within the EC process are more lenient than permanently numbered courses, it is expected that new courses with permanent numbers will meet viability policies. Minors are commonly created for the purposes specified above as an extension of a degree program, having required courses in common, which has no additional program cost since the courses are populated as required parts of the degree program. As such, minors created from degree programs are encouraged. Departments can choose to skip the EC process and create a new permanent course, e.g., when creating a minor, emphasis, or certificate, in addition to courses that are also to be required within a degree program.

Minor with Permanent Course Creation

The goal is to underscore the excellence available in academic learning on campus but to not maintain those that do not attract students. Each degree program is allowed one minor program that requires no student population justification per year, having been ostensibly created from required courses of their degree program, but departments may create as many other minors as are reasonably populated. All current minor programs are included in any counting of minors that are not justified by population.

Minors can be used as a reason to create new classes that bypass the EC process provided there is a compelling reason for their creation. The campus curriculum committee (CCC) will recommend to the Senate those that are deemed compelling. All proposed permanent courses, those proposing non-experimental catalog numbers, must be required in the minor. No more than 6 credit hours of new permanent courses per year that bypass the EC process are allowed; any additional course credit hours bypassing the EC process must be well-justified.

Course Purging Policy

To avoid simply a bypassing of the EC process, minors and their respective courses shall be evaluated for number of students completing said minor and courses at a period of 5 years and assessed against the appropriate campus policy(ies). Minors and their courses required within the minor not meeting those policies are to be deactivated along with the new courses that were created outside the EC process when the minor was created unless the course has been taught successfully within the last 5 years.

Courses not taught are routinely purged from the catalog about every 10 years. At the 10 year review, any required courses for a degree program, minor, or certificate but having not been taught successfully during the last 10 years will be assessed by the campus curriculum committee for deactivation, along with the degree program, minor, or certificate requiring that course.