

Campus Curricula Committee Meeting Agenda

April 2, 2024

8:15am - 9:30am, Parker Hall 203

(For Faculty Senate Meeting of April 25, 2024)

Review of submitted Course Change forms:

File: 5049	BME 2001 : Special Topics
File: 5050	BME 3001 : Special Topics
File: 5019	BME 3100 : Fundamentals of Transport in Biomedical Engineering
File: 5053	BME 4000 : Special Problems
File: 5051	BME 4001 : Special Topics
File: 5020	BME 4091 : Biomedical Engineering Design I
File: 5021	BME 4097 : Biomedical Engineering Design II
File: 5022	BME 4099 : Undergraduate Research
File: 5026	BME 4100 : Biomedical Polymers and Metals
File: 5052	BME 5001 : Special Topics
File: 5023	BME 5100 : Drug and Gene Delivery Systems
File: 5024	BME 5200 : Materials as Hard Tissue Devices
File: 5025	BME 5300 : Vaccine Manufacturing
File: 2081.1	BUS 5105 : Graduate Management and Business Law Essentials
File: 2327.5	BUS 5115 : Introduction to Individual and Group Dynamics in Business
File: 2079.1	BUS 5205 : Graduate Accounting Essentials
File: 2071.1	BUS 5305 : Graduate Operations Management Essentials
File: 2078.1	BUS 5705 : Graduate Management Information Systems Essentials
File: 2073.1	BUS 5805 : Graduate Mathematics and Statistics Essentials
File: 2278.1	BUS 5896 : Project Research
File: 1038.16	CHEM ENG 3150 : Chemical Engineering Reactor Design
File: 797.16	CHEM ENG 4220 : Biochemical Reactor Laboratory
File: 4290.8	CHEM ENG 5250 : Isolation and Purification of Biologicals
File: 5057	ELEC ENG 2410 : Continuous Linear Systems
File: 5058	ELEC ENG 2411 : Continuous Linear Systems Laboratory
File: 526.1	ELEC ENG 3100 : Electronics I
File: 528.1	ELEC ENG 3101 : Electronics I Laboratory
File: 525.1	ELEC ENG 3250 : Electronic And Photonic Devices
File: 554.12	ELEC ENG 3320 : Control Systems
File: 4049.9	ELEC ENG 3321 : Control Systems Laboratory
File: 4051.6	ELEC ENG 3430 : Digital Communications I
File: 4052.6	ELEC ENG 3431 : Digital Communication Laboratory
File: 2090.1	FINANCE 5205 : Graduate Finance Essentials
File: 5065	HISTORY 3200 : History of Eastern Europe

File: 5063 HISTORY 4760 : China's Rise to Superpower
 File: 2391.13 IS&T 5335 : Fundamentals of Mobile Technology for Business
 File: 1034.6 IS&T 5445 : Database Marketing
 File: 2003.5 IS&T 5652 : Advanced Web Development
 File: 124.12 IS&T 5886 : Prototyping Human-Computer Interactions
 File: 445.11 IS&T 6654 : Advanced Web Design and Digital Media Studies
 File: 5054 MECH ENG 5479 : Machine Learning for Manufacturing Automation
 File: 2068.1 MKT 5105 : Graduate Marketing and Strategy Essentials

Review of submitted Program Change forms:

File: 141.40 AE ENG-BS : Aerospace Engineering BS
 File: 292.14 AI-CT : AI, Mach Lrn & Auto for Bus CT
 File: 293.16 ANA&DTA-CT : Bus Analytics & Data Sci CT
 File: 147.28 BIO SC-BS : Biological Sciences BS
 File: 11.8 BUS&MS-MI : Business Minor
 File: 386.13 CM ENG-CT : Carbon Management Engineering CT
 File: 153.98 CP ENG-BS : Computer Engineering BS
 File: 294.7 DATA WR-CT : Business Intelligence CT
 File: 296.10 DIGITMD-CT : Digital Media & Web Design CT
 File: 298.14 E&S COM-CT : Electronic & Social Commerce CT
 File: 155.71 EL ENG-BS : Electrical Engineering BS
 File: 50.12 ENTPRNS-MI : Entrepreneurship Minor
 File: 382.36 ENV SCI-BS : Environmental Science BS
 File: 256.22 FIN TCH-MI : Minor in Financial Technology, Analytics and Transformation
 File: 289.2 FINANCE-CT : Finance CT
 File: 300.10 HCI-CT : Human Computer Interaction CT
 File: 157.50 HIST-BA : History BA
 File: 242.32 HISTORY-BS : Bachelor of Science in History
 File: 138.17 MGMT-MI : Management Minor
 File: 291.15 MGTLEAD-CT : Management and Leadership
 File: 93.17 MIL SC-MI : Adaptive Leadership Minor
 File: 302.19 MOBLB&T-CT : Mobile Business and Digital Transformation CT
 File: 407 PROPOSED : Biomedical Engineering BS
 File: 286.2 STATS-CT : Statistics
 File: 368.19 TP&E-CTU : Technology, Philosophy, and Ethical Futures CTU

Review of submitted Experimental Course forms:

File: 5060 MECH ENG 3001.001 : Additive Manufacturing Processes
 File: 5056 MECH ENG 5001.008 : Introduction to Design Optimization

Course Change Request

New Course Proposal

Date Submitted: 02/06/24 8:25 am

Viewing: **BME 2001 : Special Topics**

File: 5049

Last edit: 02/07/24 12:45 pm

Changes proposed by: luksc

Requested	Fall 2024
Effective Change Date	
Department	Chemical and Biochemical Engineering
Discipline	Biomedical Engineering (BME)
Course Number	2001
Title	Special Topics
Abbreviated Course Title	Special Topics
Topics Titles	

Catalog

Description

This course is designed to give the department an opportunity to test a new course. Variable titles.

Prerequisites

Field Trip

Statement

Credit Hours	LEC: 0	LAB: 0	IND: 0	RSD: 0
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Total: 0-6

Required for Majors	No
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Elective for	No
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In Workflow

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

Approval Path

1. 02/06/24 1:14 pm
Hu Yang (huyang):
Approved for
RCHEMENG Chair
2. 02/07/24 12:49 pm
Jennifer
Pohlsander
(jpnfd): Approved
for CCC Secretary
3. 03/05/24 1:03 pm
Mark Fitch
(mfitch):
Approved for
Engineering DSCC
Chair

Majors

Justification for
new course:

New degree program. This course is designed to give the department an opportunity to test a new course. Variable titles.

Semesters

previously
offered as an
experimental
course

Co-Listed

Courses:

Course Reviewer **jpnfd (02/07/24 12:45 pm):** It is not necessary to list prerequisites. This field can be
Comments left blank.

4. 03/19/24 7:46 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Key: 5049

[Preview Bridge](#)

Course Change Request

New Course Proposal

Date Submitted: 02/06/24 8:27 am

Viewing: **BME 3001 : Special Topics**

File: 5050

Last edit: 02/07/24 12:45 pm

Changes proposed by: luksc

Requested	Fall 2024
Effective Change Date	
Department	Chemical and Biochemical Engineering
Discipline	Biomedical Engineering (BME)
Course Number	3001
Title	Special Topics
Abbreviated Course Title	Special Topics
Topics Titles	

Catalog

Description

This course is designed to give the department an opportunity to test a new course. Variable titles.

Prerequisites

Field Trip

Statement

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

Total: 0-6

Required for	No
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Majors

Elective for	No
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In Workflow

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

Approval Path

1. 02/06/24 1:14 pm
Hu Yang (huyang):
Approved for
RCHEMENG Chair
2. 02/07/24 12:50 pm
Jennifer
Pohlsander
(jpnfd): Approved
for CCC Secretary
3. 03/05/24 1:03 pm
Mark Fitch
(mfitch):
Approved for
Engineering DSCC
Chair

Majors

Justification for
new course:

New degree program. This course is designed to give the department an opportunity to test a new course. Variable titles.

Semesters

previously
offered as an
experimental
course

Co-Listed

Courses:

Course Reviewer **jpnfd (02/07/24 12:45 pm):** It is not necessary to list prerequisites. This field can be
Comments left blank.

4. 03/19/24 7:46 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Key: 5050

[Preview Bridge](#)

Course Change Request

New Course Proposal

Date Submitted: 02/29/24 3:34 pm

Viewing: **BME 3100 : Fundamentals of Transport in Biomedical Engineering**

File: 5019

Last edit: 03/01/24 1:33 pm

Changes proposed by: luksc

Requested	Fall 2024
Effective Change Date	
Department	Chemical and Biochemical Engineering
Discipline	Biomedical Engineering (BME)
Course Number	3100
Title	Fundamentals of Transport in Biomedical Engineering
Abbreviated Course Title	Fund BioTransport

Catalog

Description

This course covers the fundamentals of momentum, energy, and mass transport with an emphasis on the applications in biology and biotechnology. General differential equations for momentum, energy, and mass transfer are presented and solved for a variety of biomedical engineering problems.

Prerequisites

A grade of "C" or better in Math 3304 and either Chem Eng 2110 or Cer Eng 3230.

Field Trip

Statement

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

Required for Yes

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. 12/11/23 3:30 pm
Hu Yang (huyang):
Approved for
RCHEMENG Chair
2. 12/20/23 2:54 pm
Jennifer
Pohlsander
(jpnfd): Approved
for CCC Secretary
3. 12/20/23 3:18 pm
Jennifer
Pohlsander
(jpnfd): Rollback
to CCC Secretary
for Pending CCC
Agenda post

Majors

Elective for No

Majors

Justification for
new course:

This is part of the new BS degree in BME in the biomanufacturing track. The content is very similar to ChemEng 3101, but the bio-focus requires different applications and a greater emphasis on mass transfer.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer

Comments

jpnfd (12/15/23 10:07 am): Updated abbreviate title.
jpnfd (12/20/23 3:18 pm): Rollback: Update workflow.
esdk3 (12/20/23 3:44 pm): Rollback: refreshing workflow; you can ignore
esdk3 (12/21/23 8:14 am): Rollback: .
mfitch (02/29/24 3:33 pm): Rollback: As requested to modify prereqs
jpnfd (03/01/24 1:33 pm): Updated prerequisite format.

Key: 5019

4. 12/20/23 3:44 pm
Evie Sherlock
(esdk3): Rollback
to RCHEMENG
Chair for CCC
Secretary
5. 12/20/23 3:44 pm
Evie Sherlock
(esdk3):
Approved for
RCHEMENG Chair
6. 12/21/23 8:10 am
Evie Sherlock
(esdk3):
Approved for CCC
Secretary
7. 12/21/23 8:14 am
Evie Sherlock
(esdk3): Rollback
to CCC Secretary
for Engineering
DSCC Chair
8. 12/21/23 8:15 am
Evie Sherlock
(esdk3):
Approved for CCC
Secretary
9. 02/29/24 3:33 pm
Mark Fitch
(mfitch): Rollback
to Initiator
10. 02/29/24 4:04 pm
Hu Yang (huyang):
Approved for
RCHEMENG Chair
11. 03/01/24 1:56 pm
Jennifer
Pohlsander
(jpnfd): Approved
for CCC Secretary
12. 03/05/24 1:03 pm

Mark Fitch
(mfitch):
Approved for
Engineering DSCC
Chair

13. 03/19/24 7:46 am

Jennifer

Pohlsander

(jpnfd): Approved
for Pending CCC

Agenda post

[Preview Bridge](#)

Course Change Request

New Course Proposal

Date Submitted: 02/06/24 8:45 am

Viewing: **BME 4000 : Special Problems**

File: 5053

Last edit: 02/07/24 1:09 pm

Changes proposed by: luksc

Requested	Fall 2024
Effective Change Date	
Department	Chemical and Biochemical Engineering
Discipline	Biomedical Engineering (BME)
Course Number	4000
Title	Special Problems
Abbreviated Course Title	Special Problems

Catalog Description	Problems or readings on specific subjects or projects in the department. Consent of instructor required.			
Prerequisites	Permission of the instructor.			
Field Trip Statement				
Credit Hours	LEC: 0	LAB: 0	IND: 0-6	RSD: 0
Total:	0-6			
Required for Majors	No			
Elective for Majors	Yes			

In Workflow

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

Approval Path

1. 02/06/24 1:14 pm
Hu Yang (huyang):
Approved for
RCHEMENG Chair
2. 02/07/24 1:10 pm
Jennifer
Pohlsander
(jpnfd): Approved
for CCC Secretary
3. 03/05/24 1:03 pm
Mark Fitch
(mfitch):
Approved for
Engineering DSCC
Chair
4. 03/19/24 7:46 am

Justification for
new course:

New degree program. This course is designed to give students the opportunity to do deeper studies in a topic of interest to them under the guidance of a professor.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer **jpnfd (02/07/24 1:09 pm):** Updated title from special projects to special problems.

Comments **jpnfd (02/07/24 1:09 pm):** Updated prerequisite format.

Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Key: 5053

[Preview Bridge](#)

Course Change Request

New Course Proposal

Date Submitted: 02/06/24 8:28 am

Viewing: **BME 4001 : Special Topics**

File: 5051

Last edit: 02/07/24 12:46 pm

Changes proposed by: luksc

Requested Fall 2024
Effective Change
Date
Department Chemical and Biochemical Engineering
Discipline Biomedical Engineering (BME)
Course Number 4001
Title
 Special Topics
Abbreviated Special Topics
Course Title
Topics Titles

Catalog
Description
 This course is designed to give the department an opportunity to test a new course.
 Variable titles.

Prerequisites

Field Trip
Statement

Credit Hours LEC: 0 LAB: 0 IND: 0 RSD: 0
 Total: 0-6

Required for
Majors No

Elective for No

In Workflow

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

Approval Path

1. 02/06/24 1:14 pm
 Hu Yang (huyang):
 Approved for
 RCHEMENG Chair
2. 02/07/24 12:50 pm
 Jennifer
 Pohlsander
 (jpnfd): Approved
 for CCC Secretary
3. 03/05/24 1:03 pm
 Mark Fitch
 (mfitch):
 Approved for
 Engineering DSCC
 Chair

Majors

Justification for
new course:

New degree program. This course is designed to give the department an opportunity to test a new course. Variable titles.

Semesters

previously
offered as an
experimental
course

Co-Listed

Courses:

Course Reviewer **jpnfd (02/07/24 12:46 pm):** It is not necessary to list prerequisites. This field can be
Comments left blank.

4. 03/19/24 7:46 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Key: 5051

[Preview Bridge](#)

Course Change Request

New Course Proposal

Date Submitted: 12/11/23 3:30 pm

Viewing: **BME 4091 : Biomedical Engineering Design I**

File: 5020

Last edit: 12/15/23 9:39 am

Changes proposed by: luksc

Requested Fall 2024
Effective Change
Date
Department Chemical and Biochemical Engineering
Discipline Biomedical Engineering (BME)
Course Number 4091
Title
 Biomedical Engineering Design I
Abbreviated Design I
Course Title

Catalog

Description

Design considerations for biomedical engineering manufacturing and biomaterials design emphasizing traditional engineering design concepts and engineering economic analysis.

Prerequisites

Preceded or Accompanied by English 3560 and either Chem Eng 5250 or MS&E 5310.

Field Trip

Statement

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

Total: 3

Required for Yes

Majors

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. 12/11/23 3:30 pm
Hu Yang (huyang):
Approved for
RCHEMENG Chair
2. 12/20/23 2:54 pm
Jennifer
Pohlsander
(jpnfd): Approved
for CCC Secretary
3. 12/20/23 3:18 pm
Jennifer
Pohlsander
(jpnfd): Rollback
to CCC Secretary
for Pending CCC
Agenda post

Elective for Majors No

Justification for new course:

Required course in new BS in Biomedical Engineering.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer

Comments

jpnfd (12/15/23 9:39 am): Updated prerequisite format.

jpnfd (12/20/23 3:18 pm): Rollback: Update workflow.

jpnfd (12/20/23 3:23 pm): Rollback: Update workflow.

4. 12/20/23 3:21 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
5. 12/20/23 3:23 pm
Jennifer Pohlsander (jpnfd): Rollback to CCC Secretary for Pending CCC Agenda post
6. 12/21/23 8:10 am
Evie Sherlock (esdk3): Approved for CCC Secretary
7. 03/05/24 1:03 pm
Mark Fitch (mfitch): Approved for Engineering DSCC Chair
8. 03/19/24 7:46 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Key: 5020

Course Change Request

New Course Proposal

Date Submitted: 12/11/23 3:34 pm

Viewing: **BME 4097 : Biomedical Engineering Design II**

File: 5021

Last edit: 12/15/23 9:40 am

Changes proposed by: luksc

Requested Fall 2024
Effective Change
Date
Department Chemical and Biochemical Engineering
Discipline Biomedical Engineering (BME)
Course Number 4097
Title
 Biomedical Engineering Design II
Abbreviated Design II
Course Title

Catalog
Description
 Application of engineering design principles to the solution of a biomedical engineering problem. Communication emphasized course.
Prerequisites
 BME 4091.
Field Trip
Statement

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

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. 12/11/23 3:34 pm
 Hu Yang (huyang):
 Approved for
 RCHEMENG Chair
2. 12/20/23 2:54 pm
 Jennifer
 Pohlsander
 (jpnfd): Approved
 for CCC Secretary
3. 12/20/23 3:18 pm
 Jennifer
 Pohlsander
 (jpnfd): Rollback
 to CCC Secretary
 for Pending CCC
 Agenda post

Justification for
new course:

New course in BS degree for Biomedical Engineering

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer

Comments

jpnfd (12/15/23 9:40 am): Updated prerequisite format.

jpnfd (12/20/23 3:18 pm): Rollback: Update workflow.

4. 12/21/23 8:11 am
Evie Sherlock
(esdk3):
Approved for CCC
Secretary
5. 03/05/24 1:03 pm
Mark Fitch
(mfitch):
Approved for
Engineering DSCC
Chair
6. 03/19/24 7:46 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Key: 5021

[Preview Bridge](#)

Course Change Request

New Course Proposal

Date Submitted: 12/11/23 3:38 pm

Viewing: **BME 4099 : Undergraduate Research**

File: 5022

Last edit: 12/15/23 9:42 am

Changes proposed by: luksc

Requested	Fall 2024
Effective Change Date	
Department	Chemical and Biochemical Engineering
Discipline	Biomedical Engineering (BME)
Course Number	4099
Title	Undergraduate Research
Abbreviated Course Title	Undergraduate Research

Catalog

Description

Designed for the undergraduate student who wishes to engage in research. Not for graduate credit. Not more than six hours allowed for graduation credit. Subject and credit to be arranged with the instructor.

Prerequisites

Consent of instructor required.

Field Trip

Statement

Credit Hours	LEC: 0	LAB: 0	IND: 0-6	RSD: 0
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Total: 0-6

Required for Majors	No
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Statement

Elective for	Yes
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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. 12/11/23 3:38 pm
Hu Yang (huyang):
Approved for
RCHEMENG Chair
2. 12/20/23 2:54 pm
Jennifer
Pohlsander
(jpnfd): Approved
for CCC Secretary
3. 12/20/23 3:18 pm
Jennifer
Pohlsander
(jpnfd): Rollback
to CCC Secretary
for Pending CCC
Agenda post

Majors

Justification for
new course:

For new BS degree in Biomedical Engineering

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer

Comments

jpnfd (12/15/23 9:42 am): Updated prerequisite format.

jpnfd (12/20/23 3:18 pm): Rollback: Update workflow.

4. 12/21/23 8:11 am
Evie Sherlock
(esdk3):
Approved for CCC
Secretary
5. 03/05/24 1:03 pm
Mark Fitch
(mfitch):
Approved for
Engineering DSCC
Chair
6. 03/19/24 7:46 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Key: 5022

[Preview Bridge](#)

Course Change Request

New Course Proposal

Date Submitted: 12/11/23 4:16 pm

Viewing: **BME 4100 : Biomedical Polymers and Metals**

File: 5026

Last edit: 12/15/23 9:43 am

Changes proposed by: luksc

Requested Fall 2024
Effective Change
Date
Department Chemical and Biochemical Engineering
Discipline Biomedical Engineering (BME)
Course Number 4100
Title
 Biomedical Polymers and Metals
Abbreviated Bio Polymers and Metals
Course Title

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

Catalog

Description

The structure of polymers and metals and their use in bio-applications with emphasis on how the structures influence processing, mechanical properties, and corrosion.

Prerequisites

Chem Eng 3210.

Field Trip

Statement

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

Total: 3

Required for Yes

Majors

Elective for No

Approval Path

1. 12/11/23 6:36 pm
Hu Yang (huyang):
Approved for
RCHEMENG Chair
2. 12/20/23 2:54 pm
Jennifer
Pohlsander
(jpnfd): Approved
for CCC Secretary
3. 12/20/23 3:18 pm
Jennifer
Pohlsander
(jpnfd): Rollback
to CCC Secretary
for Pending CCC
Agenda post

Majors

Justification for
new course:

New course for BS in Biomedical Engineering Biomaterials Track

Semesters

previously
offered as an
experimental
course

Updated prerequisite format.

Co-Listed

Courses:

Course Reviewer

Comments

jpnfd (12/20/23 3:18 pm): Rollback: Update workflow.

4. 12/21/23 8:11 am
Evie Sherlock
(esdk3):
Approved for CCC
Secretary
5. 03/05/24 1:03 pm
Mark Fitch
(mfitch):
Approved for
Engineering DSCC
Chair
6. 03/19/24 7:46 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Key: 5026

[Preview Bridge](#)

Course Change Request

New Course Proposal

Date Submitted: 02/06/24 8:29 am

Viewing: **BME 5001 : Special Topics**

File: 5052

Last edit: 02/07/24 12:46 pm

Changes proposed by: luksc

Requested	Fall 2024
Effective Change Date	
Department	Chemical and Biochemical Engineering
Discipline	Biomedical Engineering (BME)
Course Number	5001
Title	Special Topics
Abbreviated Course Title	Special Topics
Topics Titles	

Catalog

Description

This course is designed to give the department an opportunity to test a new course. Variable titles.

Prerequisites

Field Trip

Statement

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

Total: 0-6

Required for Majors	No
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Elective for	No
--------------	----

In Workflow

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

Approval Path

1. 02/06/24 1:15 pm
Hu Yang (huyang):
Approved for
RCHEMENG Chair
2. 02/07/24 12:50 pm
Jennifer
Pohlsander
(jpnfd): Approved
for CCC Secretary
3. 03/05/24 1:03 pm
Mark Fitch
(mfitch):
Approved for
Engineering DSCC
Chair

Majors

Justification for
new course:

New degree program. This course is designed to give the department an opportunity to test a new course. Variable titles.

Semesters

previously
offered as an
experimental
course

Co-Listed

Courses:

Course Reviewer **jpnfd (02/07/24 12:46 pm):** It is not necessary to list prerequisites. This field can be
Comments left blank.

4. 03/19/24 7:46 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Key: 5052

[Preview Bridge](#)

Course Change Request

New Course Proposal

Date Submitted: 12/11/23 3:44 pm

Viewing: **BME 5100 : Drug and Gene Delivery Systems**

File: 5023

Last edit: 12/15/23 9:43 am

Changes proposed by: luksc

Programs [PROPOSED: Bioengineering PhD](#)
referencing this
course

Requested Fall 2024
Effective Change
Date
Department Chemical and Biochemical Engineering
Discipline Biomedical Engineering (BME)
Course Number 5100
Title
 Drug and Gene Delivery Systems
Abbreviated Drug and Gene Delivery
Course Title

Catalog
Description
 Overview of drug and gene delivery systems, rational design for their applications with an emphasis on structure-property-function relationships. Three major parts: polymers and nanoparticles as drug and gene carriers; strategies to deliver drugs and genes; in vitro and in vivo techniques of assessment and validation.
Prerequisites
 Chem 2210 and Bio Sci 2213.
Field Trip
Statement

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. 12/11/23 3:46 pm
Hu Yang (huyang):
Approved for
RCHEMENG Chair
2. 12/20/23 2:54 pm
Jennifer
Pohlsander
(jpnfd): Approved
for CCC Secretary
3. 12/20/23 3:19 pm
Jennifer
Pohlsander
(jpnfd): Rollback
to CCC Secretary
for Pending CCC
Agenda post

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

Total: 3

Required for No
Majors

Elective for Yes
Majors

Justification for
new course:

A track elective for the new BS degree in Biomedical Engineering.

Semesters
previously
offered as an
experimental
course

Sp22, Sp23, and Sp24

Co-Listed

Courses:

Course Reviewer **jpnfd (12/15/23 9:43 am):** Updated prerequisite format.

Comments **jpnfd (12/20/23 3:19 pm):** Rollback: Update workflow.

4. 12/21/23 8:11 am

Evie Sherlock

(esdk3):

Approved for CCC
Secretary

5. 03/05/24 1:03 pm

Mark Fitch

(mfitch):

Approved for
Engineering DSCC
Chair

6. 03/19/24 7:46 am

Jennifer

Pohlsander

(jpnfd): Approved
for Pending CCC

Agenda post

Key: 5023

[Preview Bridge](#)

Course Change Request

New Course Proposal

Date Submitted: 12/11/23 3:53 pm

Viewing: **BME 5200 : Materials as Hard Tissue Devices**

File: 5024

Last edit: 12/15/23 9:44 am

Changes proposed by: luksc

Requested Fall 2024
Effective Change
Date
Department Chemical and Biochemical Engineering
Discipline Biomedical Engineering (BME)
Course Number 5200
Title
 Materials as Hard Tissue Devices
Abbreviated Hard Tissue Devices
Course Title

Catalog

Description

The structure-property relationships of materials employed as medical devices, as well as the bone, cartilage, and ligament that they are designed to replace. The behavior of materials in the physiological environment, the tailoring of that behavior as a response to both bulk and surface properties, and the future of hard tissue medical devices.

Prerequisites

BME 4100 or MS&E 5210.

Field Trip

Statement

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

Total: 3

Required for No

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. 12/11/23 3:53 pm
Hu Yang (huyang):
Approved for
RCHEMENG Chair
2. 12/20/23 2:55 pm
Jennifer
Pohlsander
(jpnfd): Approved
for CCC Secretary
3. 12/20/23 3:19 pm
Jennifer
Pohlsander
(jpnfd): Rollback
to CCC Secretary
for Pending CCC
Agenda post

Majors

Elective for Majors Yes

Majors

Justification for new course:

New track elective for BS in Biomedical Engineering

Semesters previously offered as an experimental course

Sp24

Co-Listed Courses:

Course Reviewer

Comments

jpnfd (12/15/23 9:44 am): Updated prerequisite format.

jpnfd (12/20/23 3:19 pm): Rollback: Update workflow.

4. 12/21/23 8:11 am
Evie Sherlock
(esdk3):
Approved for CCC
Secretary

5. 03/05/24 1:03 pm
Mark Fitch
(mfitch):
Approved for
Engineering DSCC
Chair

6. 03/19/24 7:46 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Key: 5024

[Preview Bridge](#)

Course Change Request

New Course Proposal

Date Submitted: 12/11/23 3:57 pm

Viewing: **BME 5300 : Vaccine Manufacturing**

File: 5025

Last edit: 12/20/23 4:10 pm

Changes proposed by: luksc

Requested Fall 2024
Effective Change
Date
Department Chemical and Biochemical Engineering
Discipline Biomedical Engineering (BME)
Course Number 5300
Title
 Vaccine Manufacturing
Abbreviated Vaccine Manufacturing
Course Title

Catalog

Description

The development, manufacturing, and approval process of vaccines are covered. Vaccines that use attenuated or inactivated viruses, viral components and mRNA as the active ingredient are discussed. The manufacturing process includes the making of the active ingredient, vaccine formulation and delivery. The class includes three remote lab experiments.

Prerequisites

Senior standing in an engineering discipline, physics, chemistry, or biology.

Field Trip

Statement

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

Total: 3

Required for No

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. 12/11/23 3:58 pm
Hu Yang (huyang):
Approved for
RCHEMENG Chair
2. 12/20/23 2:55 pm
Jennifer
Pohlsander
(jpnfd): Approved
for CCC Secretary
3. 12/20/23 3:19 pm
Jennifer
Pohlsander
(jpnfd): Rollback
to CCC Secretary
for Pending CCC
Agenda post

Majors

Elective for Yes

Majors

Justification for
new course:

New track elective for BS in Biomedical Engineering

Semesters
previously
offered as an
experimental
course

FS23

Co-Listed
Courses:

Course Reviewer

Comments

jpnfd (12/20/23 3:19 pm): Rollback: Update workflow.

4. 12/21/23 8:11 am

Evie Sherlock

(esdk3):

Approved for CCC

Secretary

5. 03/05/24 1:03 pm

Mark Fitch

(mfitch):

Approved for

Engineering DSCC

Chair

6. 03/19/24 7:46 am

Jennifer

Pohlsander

(jpnfd): Approved

for Pending CCC

Agenda post

Key: 5025

[Preview Bridge](#)

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 02/14/24 8:21 am

Viewing: **BUS 5105 : Graduate Management and Business**

Law Essentials

File: 2081.1

Last edit: 02/14/24 8:21 am

Changes proposed by: cecq8z

Requested Fall 2024 ~~07/01/2024~~
Effective Change
Date
Department Business and Information Technology
Discipline Business (BUS)
Course Number 5105
Title
Graduate Management and Business Law Essentials
Abbreviated Grad Mgt and Bus Law Essent
Course Title

Catalog

Description

This course is an introduction to the essentials of management and business law for running a business. It's designed for students planning to enter the MBA program who need this area and for non-business students who want some business background. Credit cannot be applied to any major or minor in Business, IS&T, or Economics. Additional case study or report required.

Prerequisites

Bachelor Degree.

Field Trip

Statement

Credit Hours LEC: 1.5 LAB: 0 IND: 0 RSD: 0

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. 02/21/24 11:11 am
Cassie Elrod (cassa): Approved for RBUSADMN Chair
2. 02/22/24 3:33 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 02/22/24 3:37 pm
Cecil Eng Huang Chua (cchua):

Total: 1.5

Required for
Majors No

Elective for
Majors No

Justification for
change:

No one to teach it.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Approved for
Social Sciences
DSCC Chair
4. 03/19/24 7:46 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Key: 2081

[Preview Bridge](#)

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 02/14/24 8:22 am

Viewing: **BUS 5115 : Introduction to Individual and Group Dynamics in Business**

File: 2327.5

Last approved: 11/20/17 3:28 am

Last edit: 02/14/24 8:22 am

Changes proposed by: cecq8z

Requested Fall 2024 ~~01/09/2018~~

Effective Change

Date

Department Business and Information Technology

Discipline Business (BUS)

Course Number 5115

Title

Introduction to Individual and Group Dynamics in Business

Abbreviated Indiv and Group Dynamics

Course Title

Catalog

Description

This course will cover contemporary theories of business leadership styles and group dynamics. Leadership theories, group dysfunction/function, positive group interactions, change impacts, the importance of business ethics as well as the role of gender and culture on the group will be examined.

Prerequisites

Field Trip

Statement

Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

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. 02/21/24 11:12 am
Cassie Elrod (cassa): Approved for RBUSADMN Chair
2. 02/22/24 3:37 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 02/22/24 3:53 pm
Cecil Eng Huang Chua (cchua):

Total: 3

Required for
Majors No

Elective for
Majors No

Justification for
change:

No one to teach it.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Approved for
Social Sciences
DSCC Chair

4. 03/19/24 7:46 am

Jennifer

Pohlsander

(jpnfd): Approved
for Pending CCC
Agenda post

History

1. Nov 20, 2017 by
barryf (2327.1)

Key: 2327

[Preview Bridge](#)

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 02/14/24 8:22 am

Viewing: **BUS 5205 : Graduate Accounting Essentials**

File: 2079.1

Last edit: 02/14/24 8:22 am

Changes proposed by: cecq8z

Requested Fall 2024 ~~07/01/2024~~

Effective Change
Date

Department Business and Information Technology

Discipline Business (BUS)

Course Number 5205

Title
Graduate Accounting Essentials

Abbreviated Graduate Accounting
Course Title Essentials

Catalog

Description

This course is an introduction to the essentials of financial and managerial accounting for running a business. It's designed for students planning to enter the MBA program who need this area and for non-business students who want some business background. Credit cannot be applied to any major or minor in Business, IS&T, or Economics. Additional case or report required.

Prerequisites

Bachelor Degree.

Field Trip

Statement

Credit Hours LEC: 1.5 LAB: 0 IND: 0 RSD: 0
Total: 1.5

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. 02/21/24 11:11 am
Cassie Elrod (cassa): Approved for RBUSADMN Chair
2. 02/22/24 3:38 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 02/22/24 3:53 pm
Cecil Eng Huang Chua (cchua):

Required for
Majors

No

Elective for
Majors

No

Justification for
change:

No one to teach it.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Approved for
Social Sciences
DSCC Chair
4. 03/19/24 7:46 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Key: 2079

[Preview Bridge](#)

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 02/14/24 8:23 am

Viewing: **BUS 5305 : Graduate Operations Management Essentials**

File: 2071.1

Last edit: 02/14/24 8:23 am

Changes proposed by: cecq8z

Requested Fall 2024 ~~07/01/2024~~
Effective Change
Date
Department Business and Information Technology
Discipline Business (BUS)
Course Number 5305
Title
Graduate Operations Management Essentials
Abbreviated Grad Operations Mgt Essent
Course Title

Catalog

Description

This course is an introduction to the essentials of operations management for running a business. It is designed for students planning to enter the MBA program who need this area and for non-business students who want some business background. Credit cannot be applied to any major or minor in Business, IS&T, or Economics. Additional case study or report required.

Prerequisites

Bachelor Degree.

Field Trip

Statement

Credit Hours LEC: 1.5 LAB: 0 IND: 0 RSD: 0

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. 02/21/24 11:11 am
Cassie Elrod (cassa): Approved for RBUSADMN Chair
2. 02/22/24 3:40 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 02/22/24 3:54 pm
Cecil Eng Huang Chua (cchua):

Total: 1.5

Required for
Majors No

Elective for
Majors No

Justification for
change:

No one to teach it.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Approved for
Social Sciences
DSCC Chair
4. 03/19/24 7:47 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Key: 2071

[Preview Bridge](#)

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 02/14/24 8:23 am

Viewing: **BUS 5705 : Graduate Management Information Systems Essentials**

File: 2078.1

Last edit: 02/14/24 8:23 am

Changes proposed by: cecq8z

Requested Fall 2024 ~~07/01/2024~~
Effective Change
Date
Department Business and Information Technology
Discipline Business (BUS)
Course Number 5705
Title Graduate Management Information Systems Essentials
Abbreviated Grad Mgt Info Sysys Essent
Course Title

Catalog

Description

This course is an introduction to the essentials of management information systems for running a business. It is designed for students planning to enter the MBA program. Credit in this course cannot be applied to any major or minor in Business, IS&T, or Economics. Additional case or report required.

Prerequisites

Bachelor Degree.

Field Trip

Statement

Credit Hours LEC: 1.5 LAB: 0 IND: 0 RSD: 0
Total: 1.5

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. 02/21/24 11:11 am
Cassie Elrod (cassa): Approved for RBUSADMN Chair
2. 02/22/24 3:41 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 02/22/24 3:54 pm
Cecil Eng Huang Chua (cchua):

Required for Majors No

Elective for Majors No

Justification for change:

No one to teach it.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Approved for Social Sciences DSCC Chair
4. 03/19/24 7:47 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

Key: 2078

[Preview Bridge](#)

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 02/14/24 8:23 am

Viewing: **BUS 5805 : Graduate Mathematics and Statistics Essentials**

File: 2073.1

Last edit: 02/14/24 8:23 am

Changes proposed by: cecq8z

Requested Fall 2024 ~~07/01/2024~~
Effective Change
Date
Department Business and Information Technology
Discipline Business (BUS)
Course Number 5805
Title Graduate Mathematics and Statistics Essentials
Abbreviated Grad Math & Statistics Essent
Course Title

Catalog

Description

This course is an introduction to the essentials of mathematics and statistics for running a business. It is designed for students planning to enter the MBA program who need this area and for non-business students who want some business background. Credit cannot be applied to any major or minor in Business, IS&T, or Economics. Additional case study or report required.

Prerequisites

Bachelor Degree.

Field Trip

Statement

Credit Hours LEC: 1.5 LAB: 0 IND: 0 RSD: 0

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. 02/21/24 11:11 am
Cassie Elrod (cassa): Approved for RBUSADMN Chair
2. 02/22/24 3:42 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 02/22/24 3:54 pm
Cecil Eng Huang Chua (cchua):

Total: 1.5

Required for
Majors No

Elective for
Majors No

Justification for
change:

No one to teach it.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Approved for
Social Sciences
DSCC Chair
4. 03/19/24 7:47 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Key: 2073

[Preview Bridge](#)

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 02/14/24 8:24 am

Viewing: **BUS 5896 : Project Research**

File: 2278.1

Last edit: 02/14/24 8:24 am

Changes proposed by: cecq8z

Requested Fall 2024 ~~07/01/2024~~

Effective Change
Date

Department Business and Information Technology

Discipline Business (BUS)

Course Number 5896

Title
Project Research

Abbreviated Project Research
Course Title

Catalog

Description

The research project will involve students applying research techniques and discipline specific knowledge working on a project designed by the advisor, often working with a business organization. Requires major report and formal presentation to sponsoring organization.

Prerequisites

Permission of the instructor.

Field Trip

Statement

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

Total: 0-9

Required for No

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. 02/21/24 11:12 am
Cassie Elrod (cassa): Approved for RBUSADMN Chair
2. 02/22/24 3:54 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 02/22/24 4:09 pm
Cecil Eng Huang Chua (cchua):

Majors

Elective for No

Majors

Justification for
change:

No one to teach it.

Semesters
previously
offered as an
experimental
course

Co-Listed

Courses:

Course Reviewer

Comments

Approved for
Social Sciences
DSCC Chair

4. 03/19/24 7:47 am

Jennifer

Pohlsander

(jpnfd): Approved
for Pending CCC
Agenda post

Key: 2278

[Preview Bridge](#)

Course Change Request

Date Submitted: 02/06/24 2:51 pm

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

File: 1038.16

Last approved: 11/27/23 6:01 am

Last edit: 02/06/24 2:51 pm

Changes proposed by: luksc

Programs referencing this course
[CH ENG-BS: Chemical Engineering BS](#)
[PROPOSED: Biomedical Engineering BS](#)

Other Courses referencing this course
In The Prerequisites: _____
[CHEM ENG 4091 : Chemical Process Design I](#)
[CHEM ENG 4097 : Chemical Process Design II](#)
[CHEM ENG 4110 : Chemical Engineering Process Dynamics And Control](#)
[CHEM ENG 4130 : Chemical Engineering Laboratory II](#)
[CHEM ENG 4140 : Chemical Process Safety](#)
[CHEM ENG 4210 : Biochemical Reactors](#)
[CHEM ENG 4241 : Process Safety in the Chemical and Biochemical Industries](#)
[CHEM ENG 5110 : Intermediate Chemical Reactor Design](#)
[CHEM ENG 5210 : Intermediate Biochemical Reactors](#)
[CHEM ENG 5325 : Carbon Capture Process Engineering](#)

Requested Fall 2024
Effective Change
Date
Department Chemical and Biochemical Engineering
Discipline Chemical Engineering (CHEM ENG)
Course Number 3150
Title
Chemical Engineering Reactor Design

In Workflow

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

Approval Path

1. 02/06/24 3:22 pm
Hu Yang (huyang):
Approved for
RCHEMENG Chair
2. 02/07/24 12:52 pm
Jennifer
Pohlsander
(jpnfd): Approved
for CCC Secretary
3. 03/05/24 1:03 pm
Mark Fitch
(mfitch):
Approved for
Engineering DSCC
Chair

Abbreviated Chem Engr Reactor Design

Course Title

4. 03/19/24 7:47 am

Jennifer

Pohlsander

(jpnfd): Approved

for Pending CCC

Agenda post

Catalog

Description

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

Prerequisites

Preceded or accompanied by ~~both~~ Chem Eng ~~3111 and Chem Eng~~ 3120.

Field Trip

Statement

Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

Total: 3

Required for

Yes

Majors

Elective for

No

Majors

History

1. Jun 29, 2015 by luksc (1038.1)
2. May 24, 2016 by forcinit (1038.5)
3. May 3, 2021 by luksc (1038.10)
4. Jun 16, 2022 by luksc (1038.12)
5. Nov 27, 2023 by luksc (1038.14)

Justification for change:

Compromises needed to be made to accommodate the new BME BS

Semesters

previously offered as an experimental course

Co-Listed

Courses:

Course Reviewer

Comments

Key: 1038

[Preview Bridge](#)

Course Change Request

Date Submitted: 02/27/24 3:47 pm

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

Laboratory

File: 797.16

Last approved: 05/04/21 6:01 am

Last edit: 03/04/24 10:28 am

Changes proposed by: luksc

Programs
referencing this
course

[CH ENG-BS: Chemical Engineering BS](#)
[PROPOSED: Biomedical Engineering BS](#)
[PROPOSED: Bioengineering PhD](#)

Requested [Fall 2024](#) ~~Spring 2022~~

Effective Change
Date

Department Chemical and Biochemical Engineering

Discipline Chemical Engineering (CHEM ENG)

Course Number 4220

Title
Biochemical Reactor Laboratory

Abbreviated Bioreactor Laboratory

Course Title

Catalog
Description

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

Prerequisites

Stat [3113](#) ~~3113; Preceded~~ or [Stat 3425; Preceded or](#) accompanied by Chem Eng 4210.

Field Trip

In Workflow

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

Approval Path

1. 02/28/24 4:57 pm
Hu Yang (huyang):
Approved for
RCHEMENG Chair
2. 03/04/24 10:23
am
Jennifer
Pohlsander
(jpnfd): Approved
for CCC Secretary
3. 03/05/24 1:03 pm
Mark Fitch
(mfitch):
Approved for
Engineering DSCC
Chair

Statement

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

Total: 3

Required for Yes ~~No~~
Majors

Elective for Yes
Majors

Justification for
change:

To accommodate new BME BS

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer **jpnfd (02/29/24 9:04 am):** Updated term to Fall 2024.

Comments

4. 03/19/24 7:47 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

History

1. Oct 21, 2016 by
forcinit (797.1)
2. Aug 1, 2020 by
jcwang (797.10)
3. May 4, 2021 by
luksc (797.13)

Key: 797

[Preview Bridge](#)

Course Change Request

Date Submitted: 02/27/24 3:46 pm

Viewing: **CHEM ENG 5250 : Isolation and Purification of Biologicals**

File: 4290.8

Last approved: 06/16/22 6:01 am

Last edit: 02/29/24 8:53 am

Changes proposed by: luksc

Programs referencing this course
[CH ENG-BS: Chemical Engineering BS](#)
[CHEMPRO-CT: Chemical Process Engineering CT](#)
[PROPOSED: Biomedical Engineering BS](#)
[PROPOSED: Bioengineering PhD](#)

Other Courses referencing this course
In The Prerequisites:
[CHEM ENG 4201 : Biochemical Separations and Control Laboratory](#)

Requested Effective Change Date
[Fall 2024](#) ~~Spring 2023~~

Department Chemical and Biochemical Engineering

Discipline Chemical Engineering (CHEM ENG)

Course Number 5250

Title
Isolation and Purification of Biologicals

Abbreviated Course Title
Iso and Purif of Biolog

Catalog Description

Isolation and purification of biologicals with emphasis on biopharmaceuticals. Principles and applications of chromatography, lyophilization, and product formulation. Use of ultrafiltration and diafiltration in the processing of protein products. Disposable technology.

In Workflow

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

Approval Path

1. 02/28/24 4:57 pm
Hu Yang (huyang):
Approved for
RCHEMENG Chair
2. 03/04/24 10:23 am
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/05/24 1:04 pm
Mark Fitch (mfitch):
Approved for
Engineering DSCC Chair

Prerequisites

Preceded or accompanied by Chem Eng 3131 and Chem Eng 3141 or BME 3100.
~~3141.~~

Field Trip
Statement

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

Required for Yes
Majors

Elective for No
Majors

4. 03/19/24 7:47 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

History

1. May 24, 2016 by Daniel Forciniti (forciniti)
2. Jun 16, 2022 by luksc (4290.6)

Justification for change: to accommodate BME BS degree

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer **jpnfd (02/29/24 8:53 am):** Updated term to Fall 2024.
Comments

Course Change Request

New Course Proposal

Date Submitted: 02/23/24 7:49 am

Viewing: **ELEC ENG 2410 : Continuous Linear Systems**

File: 5057

Last edit: 02/23/24 7:49 am

Changes proposed by: kte

Programs [EL ENG-BS: Electrical Engineering BS](#)
referencing this
course

Requested Fall 2024
Effective Change
Date
Department Electrical and Computer Engineering
Discipline Electrical Engineering (ELEC ENG)
Course Number 2410
Title
 Continuous Linear Systems
Abbreviated Cont Linear Sys
Course Title

Catalog
Description
 Analysis methods for continuous-time signals and systems in the time and frequency domains including signal models, Fourier transforms, and Laplace transforms. Examples of control and communication systems are included.
Prerequisites
 ELEC ENG 2100 with a grade of "C" or better; passing the ELEC ENG Advancement Exam I. Students should enroll in ELEC ENG 2410 and ELEC ENG 2411 simultaneously.
Field Trip
Statement

In Workflow

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

Approval Path

1. 02/23/24 11:26 am
Jonathan Kimball (kimballjw):
Approved for RELECENG Chair
2. 02/29/24 2:22 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/01/24 4:42 pm
Mark Fitch (mfitch):
Approved for Engineering DSCC

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

Total: 3

Required for
Majors Yes

Elective for
Majors No

Chair

4. 03/19/24 7:47 am

Jennifer

Pohlsander

(jpnfd): Approved

for Pending CCC

Agenda post

Justification for
new course:

The EE 2410 course replaces EE 2200 as a required course in the BS Electrical Engineering curriculum. The EE 2410 course addresses a concern about our graduates not having enough background in general linear system theory. The EE 2200 course is no longer relevant. EE 2200 was started some years ago in response to low scores on parts of the Fundamentals of Engineering (FE) exam, which was required to be taken by all students at that time. The FE exam is no longer required. The material in EE 2200 will move back to the EE 3100 course where it was prior to the creation of EE 2200.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Key: 5057

[Preview Bridge](#)

Course Change Request

New Course Proposal

Date Submitted: 02/23/24 7:49 am

Viewing: **ELEC ENG 2411 : Continuous Linear Systems**

Laboratory

File: 5058

Last edit: 02/23/24 7:49 am

Changes proposed by: kte

Programs [EL ENG-BS: Electrical Engineering BS](#)
referencing this
course

Requested Fall 2024
Effective Change
Date
Department Electrical and Computer Engineering
Discipline Electrical Engineering (ELEC ENG)
Course Number 2411
Title
 Continuous Linear Systems Laboratory
Abbreviated Cont Linear Sys Lab
Course Title

Catalog
Description
 Laboratory and software tools for the analysis of linear systems. Topics include
 Matlab programming, spectral analysis, and applications.
Prerequisites
 ELEC ENG 2100 with a grade of "C" or better; passing the ELEC ENG Advancement
 Exam I. Preceded or accompanied by ELEC ENG 2410.
Field Trip
Statement

In Workflow

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

Approval Path

1. 02/23/24 11:27
am
Jonathan Kimball
(kimballjw):
Approved for
RELECENG Chair
2. 02/29/24 2:22 pm
Jennifer
Pohlsander
(jpnfd): Approved
for CCC Secretary
3. 03/01/24 4:42 pm
Mark Fitch
(mfitch):
Approved for
Engineering DSCC

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

Chair
 4. 03/19/24 7:47 am
 Jennifer
 Pohlsander
 (jpnfd): Approved
 for Pending CCC
 Agenda post

Justification for new course: The EE 2411 course replaces EE 2201 as a required course in the BS Electrical Engineering curriculum. The EE 2411 is the laboratory accompanying EE 2410 and addresses a concern about our graduates not having enough background in general linear system theory. Along with EE 2200, the EE 2201 course is no longer relevant.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer
 Comments

Course Change Request

Date Submitted: 02/23/24 8:36 am

Viewing: **ELEC ENG 3100 : Electronics I**

File: 526.1

Last edit: 02/23/24 8:46 am

Changes proposed by: kte

Programs
referencing this
course

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

Other Courses
referencing this
course

In The Catalog Description:

[ELEC ENG 3120 : Electronics II](#)

In The Prerequisites:

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

[ELEC ENG 3120 : Electronics II](#)

[ELEC ENG 3121 : Electronics II Laboratory](#)

[ELEC ENG 4096 : Electrical Engineering Senior Project I](#)

[ELEC ENG 5160 : Computer-Aided Network Design](#)

[ELEC ENG 5520 : Power Electronics](#)

Requested
Effective Change
Date

[Fall 2024](#) ~~07/01/2024~~

Department Electrical and Computer Engineering

Discipline Electrical Engineering (ELEC ENG)

Course Number 3100

Title
Electronics I

Abbreviated
Course Title Electronics I

Catalog
Description

Diode and transistor circuits, small signal analysis, amplifier design, differential and

In Workflow

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

Approval Path

1. 02/23/24 8:35 am
Jennifer
Pohlsander
(jpnfd): Rollback
to Initiator
2. 02/23/24 11:27
am
Jonathan Kimball
(kimballjw):
Approved for
RELECENG Chair
3. 02/23/24 11:41
am
Jennifer
Pohlsander
(jpnfd): Approved

operational amplifiers, flipflop circuits and waveshaping.

Prerequisites

Elec Eng 2120 ~~2120, Elec Eng 2200, Elec Eng 2201~~, and Comp Eng 2210 each with a grade of "C" or better. Passing grade on Elec Eng Advancement Exam II. ~~I and III~~. Elec Eng 3101 is a corequisite.

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: ELEC ENG 2200 and ELEC ENG 2201 no longer required. Elec Eng Advancement Exam III is being discontinued.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer **jpnfd (02/23/24 8:35 am):** Rollback: Revisions.

Comments **jpnfd (02/23/24 8:46 am):** Updated term to Fall 2024.

for CCC Secretary
4. 03/01/24 4:43 pm
Mark Fitch
(mfitch):
Approved for
Engineering DSCC
Chair
5. 03/19/24 7:47 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Course Change Request

Date Submitted: 02/23/24 8:34 am

Viewing: **ELEC ENG 3101 : Electronics I Laboratory**

File: 528.1

Last edit: 02/23/24 8:47 am

Changes proposed by: kte

Programs
referencing this
course

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

Other Courses
referencing this
course

In The Prerequisites:

[ELEC ENG 3100 : Electronics I](#)
[ELEC ENG 3120 : Electronics II](#)
[ELEC ENG 3121 : Electronics II Laboratory](#)

Requested
Effective Change
Date

[Fall 2024 07/01/2024](#)

Department Electrical and Computer Engineering

Discipline Electrical Engineering (ELEC ENG)

Course Number 3101

Title
Electronics I Laboratory

Abbreviated
Course Title

Electronics I Lab

Catalog
Description

Experiments in design with diodes, transistors, differential and operational amplifiers, and logic components.

Prerequisites

Elec Eng [2120](#) ~~2120~~, ~~Elec Eng 2200~~, ~~Elec Eng 2201~~, and Comp Eng 2210 each with a grade of "C" or better. Passing grade on Elec Eng Advancement Exam [II](#). ~~I and III~~. Elec Eng 3100 is a corequisite.

In Workflow

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

Approval Path

1. 02/23/24 11:27 am
Jonathan Kimball (kimballjw):
Approved for RELECENG Chair
2. 02/23/24 11:42 am
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/01/24 4:43 pm
Mark Fitch (mfitch):
Approved for

Field Trip
Statement

Credit Hours
Total: 1

LEC: 0

LAB: 1

IND: 0

RSD: 0

Required for
Majors

Yes ~~No~~

Elective for
Majors

No

Engineering DSCC
Chair
4. 03/19/24 7:47 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Justification for
change:

ELEC ENG 2200 and ELEC ENG 2201 no longer required. Elec Eng Advancement Exam III is being discontinued.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

jpnfd (02/23/24 8:47 am): Updated term to Fall 2024.

Key: 528

[Preview Bridge](#)

Course Change Request

Date Submitted: 02/23/24 8:37 am

Viewing: **ELEC ENG 3250 : Electronic And Photonic Devices**

File: 525.1

Last edit: 02/23/24 8:47 am

Changes proposed by: kte

Programs [EL ENG-BS: Electrical Engineering BS](#)
referencing this course

Requested [Fall 2024 07/01/2024](#)
Effective Change Date

Department Electrical and Computer Engineering

Discipline Electrical Engineering (ELEC ENG)

Course Number 3250

Title
Electronic And Photonic Devices

Abbreviated Elec/Photonic Devices
Course Title

Catalog Description
Semiconductor materials and devices for electronic and photonic applications. Topics include crystal physics, electron and photon behavior, pn junctions, heterojunctions, junction diodes, optoelectronic devices, and ohmic and rectifying contacts.

Prerequisites
Elec Eng ~~2200 and Elec Eng 2120~~ each with grade of "C" or better; passing the Elec Eng Advancement Exams II. ~~II and III~~.

Field Trip
Statement

In Workflow

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

Approval Path

1. 02/23/24 11:27 am
Jonathan Kimball (kimballjw):
Approved for RELECENG Chair
2. 02/23/24 11:42 am
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/01/24 4:43 pm
Mark Fitch (mfitch):
Approved for

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

Engineering DSCC
Chair
4. 03/19/24 7:47 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Justification for
change:

ELEC ENG 2200 no longer required. Elec Eng Advancement Exam III is being discontinued.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer **jpnfd (02/23/24 8:47 am):** Updated term to Fall 2024.
Comments

Key: 525

[Preview Bridge](#)

Course Change Request

Date Submitted: 02/23/24 8:40 am

Viewing: **ELEC ENG 3320 : Control Systems**

File: 554.12

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

Last edit: 02/26/24 10:50 am

Changes proposed by: kte

Programs referencing this course	EL ENG-BS: Electrical Engineering BS AUTOENG-MI: Minor in Automation Engineering AUTOEN-CTU: Undergraduate Certificate in Automation Engineering
Other Courses referencing this course	<u>In The Prerequisites:</u> CHEM ENG 5190 : Plantwide Process Control CHEM ENG 5355 : Process Control System Safety, Security and Alarms ELEC ENG 3321 : Control Systems Laboratory ELEC ENG 4096 : Electrical Engineering Senior Project I ELEC ENG 5300 : Digital Control ELEC ENG 5320 : Neural Networks Control and Applications ELEC ENG 5325 : Applied Nonlinear Control ELEC ENG 5330 : Fuzzy Logic Control ELEC ENG 5350 : Plantwide Process Control ELEC ENG 5355 : Process Control System Safety, Security and Alarms ELEC ENG 5360 : System Simulation And Identification ELEC ENG 5380 : Autonomous Mobile Robots ELEC ENG 5500 : Electric Drive Systems ELEC ENG 6300 : Linear Control Systems

Requested Effective Change Date [Spring 2025](#) ~~01/13/2015~~

Department Electrical and Computer Engineering
Discipline Electrical Engineering (ELEC ENG)

In Workflow

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

Approval Path

1. 02/23/24 11:28 am
Jonathan Kimball (kimballjw):
Approved for RELECENG Chair
2. 02/29/24 2:23 pm
Jennifer Pohlsander (jpnfd):
Approved for CCC Secretary
3. 03/01/24 4:43 pm
Mark Fitch (mfitch):
Approved for Engineering DSCC

Course Number 3320
Title
Control Systems
Abbreviated Control Systems
Course Title

Chair
4. 03/19/24 7:47 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Catalog

Description

Laplace transforms, formulation of the control problem, system equations and models, time and frequency domain analysis, stability, and design of linear control systems.

Prerequisites

ELEC ENG 2120, ELEC ENG 2410, ~~2120~~ and MATH 3304 each with a grade of "C" or better; passing the ELEC ENG ~~ELEC-ENG~~ Advancement Exam II; accompanied by ELEC ~~ENG~~ ~~ELEC-ENG~~ 3321.

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: ELEC ENG 2410 added as required course in the curriculum.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer **jpnfd (02/23/24 8:47 am):** Updated term to Fall 2024.
Comments **jpnfd (02/26/24 10:50 am):** Updated effective change date.

Course Change Request

Date Submitted: 02/26/24 12:30 pm

Viewing: **ELEC ENG 3321 : Control Systems Laboratory**

File: 4049.9

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

Last edit: 02/27/24 7:47 am

Changes proposed by: kte

Programs
referencing this
course

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

Other Courses
referencing this
course

In The Prerequisites:
[ELEC ENG 3320 : Control Systems](#)

Requested
Effective Change
Date

[Spring 2025](#) ~~Fall 2014~~

Department Electrical and Computer Engineering

Discipline Electrical Engineering (ELEC ENG)

Course Number 3321

Title
Control Systems Laboratory

Abbreviated
Course Title Control Systems Lab

Catalog
Description

Software tools for control systems analysis.

Prerequisites

ELEC ENG [2120](#), [ELEC ENG 2410](#), [ELEC 2411](#) ~~2420~~ and MATH 3304 with a grade of "C" or better; passing the [ELEC ENG](#) ~~ELEC-ENG~~ Advancement Exam II; preceded or accompanied by [ELEC ENG](#) ~~ELEC-ENG~~ 3320.

In Workflow

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

Approval Path

1. 02/23/24 11:35 am
Jonathan Kimball (kimballjw):
Rollback to Initiator
2. 02/26/24 11:03 pm
Jonathan Kimball (kimballjw):
Approved for RELECENG Chair
3. 02/29/24 2:22 pm
Jennifer Pohlsander (jpnfd): Approved

Field Trip
Statement

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

Required for Yes
Majors

Elective for No
Majors

for CCC Secretary
4. 03/01/24 4:43 pm
Mark Fitch
(mfitch):
Approved for
Engineering DSCC
Chair
5. 03/19/24 7:47 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Justification for
change:

ELEC ENG 2410 added as required course in the curriculum.

Semesters
previously
offered as an
experimental
course

Part of EE BS Degree REvision

Co-Listed
Courses:

History

1. Sep 29, 2014 by
watkins

Course Reviewer **jpnfd (02/23/24 8:48 am):** Updated term to Fall 2024.
Comments **kimballjw (02/23/24 11:35 am):** Rollback: Add EE 2411 as prerequisite.
 jpnfd (02/27/24 7:47 am): Updated term to Spring 2025.

Course Change Request

Date Submitted: 02/23/24 8:47 am

Viewing: **ELEC ENG 3430 : Digital Communications I**

File: 4051.6

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

Last edit: 02/26/24 10:50 am

Changes proposed by: kte

Programs referencing this course	EL ENG-BS: Electrical Engineering BS
Other Courses referencing this course	<u>In The Catalog Description:</u> ELEC ENG 3440 : Digital Communications II <u>In The Prerequisites:</u> COMP ENG 5450 : Digital Image Processing COMP ENG 5460 : Machine Vision ELEC ENG 3431 : Digital Communication Laboratory ELEC ENG 3440 : Digital Communications II ELEC ENG 4096 : Electrical Engineering Senior Project I ELEC ENG 5170 : Introduction To Circuit Synthesis ELEC ENG 5210 : Fourier Optics ELEC ENG 5420 : Communications Systems II ELEC ENG 5450 : Digital Image Processing ELEC ENG 5460 : Machine Vision ELEC ENG 5600 : Interference Control in Electronic Systems PHYSICS 5503 : Fourier Optics

Requested Effective Change Date	Spring 2025 Fall 2014
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	3430
Title	

In Workflow

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

Approval Path

1. 02/23/24 11:28 am
Jonathan Kimball (kimballjw):
Approved for RELECENG Chair
2. 02/29/24 2:22 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/01/24 4:43 pm
Mark Fitch (mfitch):
Approved for Engineering DSCC

Digital Communications I

Abbreviated Digital Communications I
Course Title

Chair
4. 03/19/24 7:47 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Catalog

Description

Signals and systems for digital communications. Topics include signals and their spectra, source formatting and source coding, digital baseband data communication, and digital pass-band modulation and demodulation.

Prerequisites

ELEC ENG 2120 and ELEC 2410 with a grade of "C" or better; passing the ELEC ENG ELEC-ENG Advancement Exam II; accompanied by ELEC ENG ELEC-ENG 3431.

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: ELEC ENG 2410 added as required course in the curriculum.

Semesters previously offered as an experimental course Part of Curriculum Revision

Co-Listed Courses:

Course Reviewer **jpnfd (02/26/24 10:50 am):** Updated effective change date.
Comments

History

1. Jul 7, 2014 by
watkins

Course Change Request

Date Submitted: 02/23/24 8:48 am

Viewing: **ELEC ENG 3431 : Digital Communication**

Laboratory

File: 4052.6

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

Last edit: 02/26/24 10:50 am

Changes proposed by: kte

Programs referencing this course	EL ENG-BS: Electrical Engineering BS
Other Courses referencing this course	In The Prerequisites: ELEC ENG 3430 : Digital Communications I

Requested Effective Change Date [Spring 2025](#) ~~Fall 2014~~

Department Electrical and Computer Engineering

Discipline Electrical Engineering (ELEC ENG)

Course Number 3431

Title Digital Communication Laboratory

Abbreviated Course Title Digital Commun Lab

Catalog

Description

Laboratory and software tools for the analysis of communications and for linear and non-linear signals and systems. Topics include spectral analysis, transforms, and applications.

Prerequisites

In Workflow

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

Approval Path

1. 02/23/24 11:29 am
Jonathan Kimball (kimballjw): Approved for RELECENG Chair
2. 02/29/24 2:23 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/01/24 4:43 pm
Mark Fitch (mfitch): Approved for Engineering DSCC

ELEC ENG 2120, ~~2120~~ and ELEC ENG 2101, ELEC ENG 2410, and ELEC ENG 2411 ~~2101~~ with a grade of "C" or better; passing the ELEC ENG ~~ELEC ENG~~ Advancement Exam II; preceded or accompanied by ELEC ENG ~~ELEC ENG~~ 3430.

Field Trip
Statement

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

Required for
Majors Yes

Elective for
Majors No

Chair
4. 03/19/24 7:47 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

History
1. Sep 29, 2014 by
watkins

Justification for
change: ELEC ENG 2410 and ELEC ENG 2411 added as required courses in the curriculum.

Semesters
previously
offered as an
experimental
course Part of BS EE Curriculum Revision

Co-Listed
Courses:

Course Reviewer **jpnfd (02/26/24 10:50 am):** Updated effective change date.
Comments

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 02/14/24 8:24 am

Viewing: **FINANCE 5205 : Graduate Finance Essentials**

File: 2090.1

Last edit: 02/14/24 8:24 am

Changes proposed by: cecq8z

Requested Fall 2024 ~~07/01/2024~~

Effective Change
Date

Department Business and Information Technology

Discipline Finance (FINANCE)

Course Number 5205

Title
Graduate Finance Essentials

Abbreviated Graduate Finance Essentials
Course Title

Catalog

Description

This course is an introduction to the essentials of corporate finance for running a business. This course is designed for students planning to enter the MBA program. Credit in this course cannot be applied to any major or minor in Business, Information Sciences and Technology. Additional case or report required.

Prerequisites

Bachelor Degree.

Field Trip

Statement

Credit Hours LEC: 1.5 LAB: 0 IND: 0 RSD: 0

Total: 1.5

Required for No

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. 02/21/24 11:12 am
Cassie Elrod (cassa): Approved for RBUSADMN Chair
2. 02/23/24 8:41 am
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 02/23/24 8:59 am
Cecil Eng Huang Chua (cchua):

Majors

Elective for No

Majors

Justification for
change:

No one to teach it.

Semesters
previously
offered as an
experimental
course

Co-Listed

Courses:

Course Reviewer

Comments

Approved for
Social Sciences
DSCC Chair

4. 03/19/24 7:47 am

Jennifer

Pohlsander

(jpnfd): Approved
for Pending CCC
Agenda post

Key: 2090

[Preview Bridge](#)

Course Change Request

New Course Proposal

Date Submitted: 03/14/24 4:47 pm

Viewing: **HISTORY 3200 : History of Eastern Europe**

File: 5065

Last edit: 03/17/24 11:09 am

Changes proposed by: sfogg

Requested	Fall 2024
Effective Change Date	
Department	History and Political Science
Discipline	History (HISTORY)
Course Number	3200
Title	History of Eastern Europe
Abbreviated Course Title	Eastern Europe

Catalog

Description

This course surveys the history of Eastern Europe from the 17th century to the present, with special emphasis on the politics of nationalism, the Second World War, and the socialist era. In addition, it will explore the region's cultural diversity through literature, film, games, and cuisine.

Prerequisites

History 1100 or History 1200 or History 1300 or History 1310 or Pol Sci 1200.

Field Trip

Statement

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

Total: 3

Required for Majors	No
---------------------	----

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. 03/14/24 4:48 pm
Shannon Fogg (sfogg): Approved for RHISTORY Chair
2. 03/15/24 9:57 am
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/17/24 11:10 am
Petra Dewitt (dewittp): Approved for Arts

Elective for Majors Yes

Justification for new course:

It is now part of the Russian and Eurasian Studies Certificate to be offered in Fall 2024 and needs a permanent course number.

Semesters previously offered as an experimental course

Spring 2023

Co-Listed Courses:

Course Reviewer
Comments

& Humanities
DSCC Chair
4. 03/19/24 7:47 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Key: 5065

[Preview Bridge](#)

Course Change Request

New Course Proposal

Date Submitted: 03/11/24 11:10 am

Viewing: **HISTORY 4760 : China's Rise to Superpower**

File: 5063

Last edit: 03/14/24 1:54 pm

Changes proposed by: sfogg

Programs
referencing this
course

[HIST-BA: History BA](#)
[HISTORY-BS: Bachelor of Science in History](#)

Requested Fall 2024
Effective Change
Date
Department History and Political Science
Discipline History (HISTORY)
Course Number 4760
Title
China's Rise to Superpower
Abbreviated ChinaRiseSuperpower
Course Title

Catalog
Description

This course examines China's tumultuous rise since 1900 from a crumbling agrarian empire to a global leader in twenty-first century technology. Adopting a political economy perspective, the course addresses the intertwining of politics and technology in historical context and traces the country's pursuit of prosperity and security through profound transformations. The course examines China's transitions from empire to republic to people's republic, from a command economy to a form of state capitalism, and from traditional authoritarianism to digital authoritarianism. Diverse sources and materials, spanning video, texts, and images, set China's domestic transformations in regional and global context.

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. 03/11/24 11:19 am
Shannon Fogg (sfogg): Approved for RHISTORY Chair
2. 03/14/24 1:56 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/14/24 4:40 pm
Petra Dewitt (dewittp): Approved for Arts

Prerequisites

History 1100 or History 1200 or History 1300 or History 1310 or Pol Sci 1200.

Field Trip
Statement

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

Total: 3

Required for
Majors No

Elective for
Majors Yes

& Humanities

DSCC Chair

4. 03/19/24 7:47 am

Jennifer

Pohlsander

(jpnfd): Approved

for Pending CCC

Agenda post

Justification for
new course:

This course is part of the new National Security Emphasis Area in both the BA and BS in History, as well as an addition to the list of non-western, marginalized focused courses.

Semesters
previously
offered as an
experimental
course

Co-Listed POL SCI 4760 - **Course Not Found**
Courses:

Course Reviewer **jpnfd (03/14/24 1:54 pm):** Updated prerequisite format.
Comments

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/05/24 2:22 pm

Viewing: **IS&T 5335 : Fundamentals of Mobile Technology for Business**

File: 2391.13

Last approved: 11/23/20 6:00 am

Last edit: 03/05/24 2:22 pm

Changes proposed by: cecq8z

Programs
referencing this
course

[MOBLB&T-MI: Mobile Business & Digital Transformation](#)
[CYBERMG-MI: Cybersecurity Management and Information Assurance Minor](#)
[CYBERMG-CT: Cybersecurity and Information Assurance Management CT](#)
[E&S COM-CT: Electronic & Social Commerce CT](#)
[MOBLB&T-CT: Mobile Business and Digital Transformation CT](#)
[E&S COM-MI: Electronic & Social Commerce Minor](#)

Requested

[Fall 2024](#) ~~Spring 2021~~

Effective Change
Date

Department

Business and Information Technology

Discipline

Info Science & Technology (IS&T)

Course Number

5335

Title

Fundamentals of Mobile Technology for Business

Abbreviated

Fund MobileTech for Bus

Course Title

Catalog

Description

A broad overview of mobile technology use in business environments. Topics include

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. 02/21/24 11:05 am
Cassie Elrod (cassa): Approved for RINFSCTE Chair
2. 03/04/24 11:40 am
Jennifer Pohlsander (jpnfd): Rollback to Initiator
3. 03/12/24 4:01 pm
Cassie Elrod (cassa): Approved

the mobile industry; mobile network and wireless standards; mobile devices; mobile web design and app development; social and user experience issues; mobile marketing and commerce.

Prerequisites

Junior standing or above.

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:

No one to teach it.

Semesters

previously offered as an experimental course

Co-Listed

Courses:

Course Reviewer

Comments

jpnfd (03/04/24 11:40 am): Rollback: Rollback. Please resubmit along with the following DC forms: •Electronic & Social Commerce CT •Mobile Business and Digital Transformation CT

for RINFSCTE

Chair

4. 03/13/24 11:18 am

Jennifer

Pohlsander

(jpnfd): Approved

for CCC Secretary

5. 03/13/24 4:13 pm

Cecil Eng Huang

Chua (cchua):

Approved for

Social Sciences

DSCC Chair

6. 03/19/24 7:48 am

Jennifer

Pohlsander

(jpnfd): Approved

for Pending CCC

Agenda post

History

1. Apr 28, 2014 by

barryf (2391.1)

2. Jun 30, 2014 by

lahne (2391.5)

3. Feb 5, 2018 by

barryf (2391.6)

4. Nov 23, 2020 by

cecq8z (2391.9)

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/05/24 2:22 pm

Viewing: **IS&T 5445 : Database Marketing**

File: 1034.6

Last approved: 11/23/20 6:01 am

Last edit: 03/05/24 2:22 pm

Changes proposed by: cecq8z

Programs [E&S COM-CT: Electronic & Social Commerce CT](#)
referencing this
course

Requested [Fall 2024](#) ~~Spring 2021~~
Effective Change
Date

Department Business and Information Technology

Discipline Info Science & Technology (IS&T)

Course Number 5445

Title
Database Marketing

Abbreviated Database Marketing
Course Title

Catalog

Description

Intro to methods and concepts used in database marketing: 1) predictive modeling techniques (e.g., regression, decision trees, cluster analysis) and 2) standard processes for mapping business objectives to data mining goals to produce a deployable marketing model. Metrics like lifetime value of a customer and ROI will be covered.

Prerequisites

Statistics understanding, programming understanding, familiarity with spreadsheets.

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. 02/21/24 10:50
am

Cassie Elrod
(cassa): Approved
for RINFSCTE
Chair

2. 03/04/24 11:42
am

Jennifer
Pohlsander
(jpnfd): Rollback
to Initiator

3. 03/12/24 4:00 pm
Cassie Elrod
(cassa): Approved

Field Trip
Statement

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

Required for No
Majors

Elective for Yes
Majors

Justification for
change:

No one to teach it.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

jpnfd (03/04/24 11:42 am): Rollback: Rollback. Please resubmit along with the following DC form: •Electronic & Social Commerce CT

for RINFSCTE
Chair

4. 03/13/24 11:17
am

Jennifer

Pohlsander

(jpnfd): Approved
for CCC Secretary

5. 03/13/24 4:13 pm

Cecil Eng Huang

Chua (cchua):

Approved for

Social Sciences

DSCC Chair

6. 03/19/24 7:48 am

Jennifer

Pohlsander

(jpnfd): Approved

for Pending CCC

Agenda post

History

1. Nov 23, 2020 by
cecq8z (1034.1)

Key: 1034

[Preview Bridge](#)

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/05/24 2:22 pm

Viewing: **IS&T 5652 : Advanced Web Development**

File: 2003.5

Last approved: 10/29/18 5:57 am

Last edit: 03/05/24 2:22 pm

Changes proposed by: cecq8z

Programs
referencing this
course

[MOBLB&T-MI: Mobile Business & Digital Transformation](#)
[DIGITMD-CT: Digital Media & Web Design CT](#)
[E&S COM-CT: Electronic & Social Commerce CT](#)
[MOBLB&T-CT: Mobile Business and Digital Transformation CT](#)
[E&S COM-MI: Electronic & Social Commerce Minor](#)

Requested
Effective Change
Date

[Fall 2024](#) ~~Spring 2019~~

Department Business and Information Technology

Discipline Info Science & Technology (IS&T)

Course Number 5652

Title
Advanced Web Development

Abbreviated
Course Title
Advanced Web Development

Catalog
Description

Advanced web development techniques to provide dynamic interaction; methods for extracting and delivering dynamic information to/from web servers - a hands-on approach. Emphasis on interaction with servers; mobile software development; processing of graphics and web video. Project work is required.

Prerequisites

IS&T 4654; one of IS&T 1551, IS&T 1561.

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. 02/21/24 11:05
am
Cassie Elrod
(cassa): Approved
for RINFSCTE
Chair
2. 03/04/24 11:44
am
Jennifer
Pohlsander
(jpnfd): Rollback
to Initiator
3. 03/12/24 4:00 pm
Cassie Elrod
(cassa): Approved

Field Trip
Statement

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

Required for No
Majors

Elective for Yes
Majors

Justification for
change:

No one to teach it.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

jpnfd (03/04/24 11:44 am): Rollback: Rollback. Please resubmit along with the following DC forms: •Digital Media & Web Design CT •Electronic & Social Commerce CT •Mobile Business and Digital Transformation CT

for RINFSCTE
Chair

4. 03/13/24 11:19
am

Jennifer
Pohlsander
(jpnfd): Approved
for CCC Secretary

5. 03/13/24 4:13 pm
Cecil Eng Huang

Chua (cchua):
Approved for
Social Sciences
DSCC Chair

6. 03/19/24 7:48 am
Jennifer

Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

History

1. Oct 29, 2018 by
barryf (2003.1)

Key: 2003

[Preview Bridge](#)

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/05/24 2:22 pm

Viewing: **IS&T 5886 : Prototyping Human-Computer**

Interactions

File: 124.12

Last approved: 11/10/16 3:14 am

Last edit: 03/05/24 2:22 pm

Changes proposed by: cecq8z

Programs referencing this course

- [MOBLB&T-MI: Mobile Business & Digital Transformation](#)
- [HCI-MI: Human-Computer Interaction and User Experience](#)
- [Minor](#)
- [DIGITMD-CT: Digital Media & Web Design CT](#)
- [E&S COM-CT: Electronic & Social Commerce CT](#)
- [HCI-CT: Human Computer Interaction CT](#)
- [MOBLB&T-CT: Mobile Business and Digital Transformation CT](#)
- [E&S COM-MI: Electronic & Social Commerce Minor](#)

Requested ~~Fall 18 Prereq~~ [Fall 2024](#)
Effective Change ~~Attribute Update~~
Date
Department Business and Information Technology
Discipline Info Science & Technology (IS&T)
Course Number 5886
Title Prototyping Human-Computer Interactions
Abbreviated Prototyping HCI
Course Title

Catalog Description
This course explores novel HCI and UX technologies as well as methods and tools for

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. 02/21/24 11:06 am
Cassie Elrod (cassa): Approved for RINFSCTE Chair
2. 03/04/24 11:46 am
Jennifer Pohlsander (jpnfd): Rollback to Initiator
3. 03/12/24 4:00 pm
Cassie Elrod (cassa): Approved

creating system prototypes, including best practices and guidelines for optimal user experiences. Example concepts include mobile applications, behavioral monitoring, gamification, natural user interfaces, haptics, and computers as social actors.

Prerequisites

Preceded or accompanied by IS&T 5885.

Field Trip

Statement

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

Total: 3

Required for	No
--------------	----

Majors

Elective for	Yes
--------------	-----

Majors

Justification for change:

No one to teach it.

Semesters

previously offered as an experimental course

Co-Listed

Courses:

Course Reviewer

Comments

jpnfd (03/04/24 11:46 am): Rollback: Rollback. Please resubmit along with the following DC forms: •Digital Media & Web Design CT •Electronic & Social Commerce CT •Human Computer Interaction CT •Mobile Business and Digital Transformation CT

for RINFSCTE Chair

4. 03/13/24 11:19 am

Jennifer

Pohlsander

(jpnfd): Approved for CCC Secretary

5. 03/13/24 4:13 pm

Cecil Eng Huang

Chua (cchua):

Approved for

Social Sciences

DSCC Chair

6. 03/19/24 7:48 am

Jennifer

Pohlsander

(jpnfd): Approved

for Pending CCC

Agenda post

History

1. Apr 25, 2014 by

lahne (124.1)

2. Feb 9, 2015 by

barryf (124.3)

3. Nov 10, 2016 by

barryf (124.6)

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 03/05/24 2:23 pm

Viewing: **IS&T 6654 : Advanced Web Design and Digital Media Studies**

File: 445.11

Last approved: 09/28/20 6:01 am

Last edit: 03/05/24 2:23 pm

Changes proposed by: cecq8z

Programs
referencing this
course

[DIGITMD-CT: Digital Media & Web Design CT](#)

[MOBLB&T-CT: Mobile Business and Digital Transformation CT](#)

Requested
Effective Change
Date

[Fall 2024](#) ~~Spring 2024~~

Department Business and Information Technology

Discipline Info Science & Technology (IS&T)

Course Number 6654

Title
Advanced Web Design and Digital Media Studies

Abbreviated Course Title
Advanced Digital Media

Catalog
Description

The course covers web design and digital media, including topics such as social media, cyberculture, service design thinking, citizen journalism, crowd intelligence, brain-computer interfaces, privacy, and copyright. This course is an advanced version of Web Design and Digital Media Studies.

Prerequisites

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. 02/21/24 11:07
am
Cassie Elrod
(cassa): Approved
for RINFSCTE
Chair

2. 03/04/24 11:50
am
Jennifer
Pohlsander
(jpnfd): Rollback
to Initiator

3. 03/12/24 4:00 pm
Cassie Elrod
(cassa): Approved

Field Trip
Statement

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

Required for No
Majors

Elective for No
Majors

Justification for
change:

No one to teach it.

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

jpnfd (03/04/24 11:50 am): Rollback: Rollback. Please resubmit along with the following DC forms: •Digital Media & Web Design CT (IS&T 6654 is a required core course) •Mobile Business and Digital Transformation CT

- for RINFSCTE
Chair
4. 03/13/24 11:20 am
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
 5. 03/13/24 4:13 pm
Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
 6. 03/19/24 7:48 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jul 7, 2014 by lahne (445.1)
2. Sep 28, 2020 by cecq8z (445.4)

Key: 445

[Preview Bridge](#)

Course Change Request

New Course Proposal

Date Submitted: 02/09/24 2:23 pm

Viewing: **MECH ENG 5479 : Machine Learning for Manufacturing Automation**

File: 5054

Last edit: 02/12/24 9:31 am

Changes proposed by: nisbett

Programs
referencing this
course

[MC ENG-BS: Mechanical Engineering BS](#)

Requested Fall 2024
Effective Change
Date
Department Mechanical & Aerospace Engineering
Discipline Mechanical Engineering (MECH ENG)
Course Number 5479
Title
Machine Learning for Manufacturing Automation
Abbreviated Machine Learn for Manuf
Course Title

Catalog
Description

Principles of machine learning, machine learning techniques (support vector machines, regression analysis, recurrent and convolution neural networks, autoencoders, deep reinforcement learning), applications (anomaly detection, computer vision, robotics).

Prerequisites

Mech Eng 4479 or Mech Eng 5313 or Aero Eng 3361 or Aero Eng 5313; and Comp Sci 1972.

In Workflow

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

Approval Path

1. 02/09/24 2:55 pm
David Bayless (djbkqf):
Approved for RMECHENG Chair
2. 02/12/24 9:32 am
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/01/24 4:44 pm
Mark Fitch (mfitch):
Approved for Engineering DSCC Chair

Field Trip
Statement

4. 03/19/24 7:48 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

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 covers an important current topic. It has been offered twice
experimentally with good enrollment.

Semesters
previously
offered as an
experimental
course Spring 2023- 7 enrolled, Spring 2024- 6 enrolled

Co-Listed
Courses: Aero Eng 5479 - **Course Not Found**

Course Reviewer **jpnfd (02/12/24 9:31 am):** Enrollment numbers added for SP23 & SP24. Updated
Comments prerequisite format.

Key: 5054

[Preview Bridge](#)

Course Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 02/21/24 12:11 pm

Viewing: **MKT 5105 : Graduate Marketing and Strategy Essentials**

File: 2068.1

Last edit: 02/22/24 3:46 pm

Changes proposed by: cecq8z

Requested Fall 2024 ~~07/01/2024~~
Effective Change
Date
Department Business and Information Technology
Discipline Marketing (MKT)
Course Number 5105
Title
Graduate Marketing and Strategy Essentials
Abbreviated Grad Mkt & Strategy Essent
Course Title

Catalog

Description

This course is an introduction to the essentials of marketing and strategy for running a business. It's designed for students planning to enter the MBA program who need this area and for non-business students who want some business background. Credit cannot be applied to any major or minor in Business, IS&T or Economics. Additional case study or report required.

Prerequisites

Bachelor Degree.

Field Trip

Statement

Credit Hours LEC: 1.5 LAB: 0 IND: 0 RSD: 0

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. 02/21/24 4:43 pm
Cassie Elrod (cassa): Approved for RBUSADMN Chair
2. 02/22/24 3:46 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 02/22/24 3:54 pm
Cecil Eng Huang Chua (cchua): Approved for

Total: 1.5

Required for
Majors No

Elective for
Majors No

Justification for
change:

No one to teach the course

Semesters
previously
offered as an
experimental
course

Co-Listed
Courses:

Course Reviewer
Comments

Social Sciences
DSCC Chair
4. 03/19/24 7:48 am
Jennifer
Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

Key: 2068

[Preview Bridge](#)

Program Change Request

Date Submitted: 02/15/24 2:58 pm

Viewing: **AE ENG-BS : Aerospace Engineering BS**

File: 141.40

Last approved: 05/02/22 1:30 pm

Last edit: 02/15/24 2:58 pm

Changes proposed by: nisbett

Catalog Pages Using this Program

[Aerospace Engineering](#)

Start Term

Fall ~~2022~~ 2024

Program Code

AE ENG-BS

Department

Mechanical & Aerospace Engineering

Title

Aerospace Engineering BS

Program Requirements and Description

In Workflow

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

Approval Path

1. 03/16/23 1:37 pm
David Bayless (djbkqf): Approved for RMECHENG Chair
2. 04/05/23 3:46 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 04/12/23 8:51 am
Mark Fitch (mfitch): Approved for Engineering DSCC Chair
4. 04/18/23 10:08 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post
5. 05/05/23 2:46 pm
Jennifer Pohlsander (jpnfd): Rollback to Initiator
6. 02/19/24 2:01 pm
David Bayless (djbkqf): Approved for RMECHENG Chair
7. 02/21/24 10:33 am
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
8. 03/01/24 4:42 pm
Mark Fitch (mfitch): Approved for Engineering DSCC Chair

9. 03/19/24 7:46 am
Jennifer Pohlsander
(jpnfd): Approved
for Pending CCC
Agenda post

History

1. Apr 28, 2014 by J. Keith Nisbett (nisbett)
2. Aug 1, 2014 by pantaleoa
3. Jul 14, 2015 by pantaleoa
4. Mar 27, 2017 by Shauntae Ellis (smetg6)
5. Nov 2, 2018 by Kakkattukuzhy Isaac (isaac)
6. Jun 14, 2019 by ershenb
7. Mar 3, 2020 by ershenb
8. Oct 28, 2021 by J. Keith Nisbett (nisbett)
9. May 2, 2022 by J. Keith Nisbett (nisbett)

Bachelor of Science Aerospace Engineering

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

Students must comply with the requirements specified in the current online catalog published by the registrar. For the bachelor of science degree in aerospace engineering a minimum of 128 credit hours is required. These requirements are in addition to credit received for algebra, trigonometry, and basic ROTC courses. An average of at least two grade points per credit hour must be attained. At least two grade points per credit hour must also be attained in all courses taken in aerospace engineering. Each student's program of study must contain a minimum of 24 credit hours of course work in general education and must be chosen to satisfy the following requirements:

1. [ENGLISH 1120](#).
2. [HISTORY 1200](#), [HISTORY 1300](#), [HISTORY 1310](#), or [POL SCI 1200](#)
3. [ECON 1100](#) or [ECON 1200](#)
4. [ENGLISH 1160](#) or [ENGLISH 3560](#) or [SP&M S 1185](#)
5. A literature elective*
6. An ethics elective*
7. Depth elective. A humanities or social science elective that has a humanities or social science course already taken as a prerequisite*
8. A humanities or social science elective*

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

Freshman Year			
First Semester	Credits	Second Semester	Credits
FR ENG 1100	1	MECH ENG 1720	3
CHEM 1310 ⁴	4	MATH 1215 ⁴	4
CHEM 1319	<u>1</u>	PHYSICS 1135 ⁴	4
ENGLISH 1120	3	H/SS Economics elective ³	3
MATH 1214 or 1211 ⁴	4		
H/SS History Elective ²	3		
	16		14
Sophomore Year			
First Semester	Credits	Second Semester	Credits
COMP SCI 1570 or 1972	2-3	AERO ENG 2780	2
COMP SCI 1580 or 1982	4	AERO ENG 2360 ⁴	3
CIV ENG 2200 ⁴	3	MECH ENG 2519 ⁴	3
MATH 2222 ⁴	4	MATH 3304 ⁴	3
PHYSICS 2135 ⁴	4	CIV ENG 2210 ⁴	3
AERO ENG 2861 ⁴	3	AERO ENG 2790	2
Programming elective ¹	<u>3</u>		
	17		16
Junior Year			
First Semester	Credits	Second Semester	Credits
AERO ENG 3613 ⁴	3	AERO ENG 3251 ⁴	3
AERO ENG 3131 ⁴	3	AERO ENG 3361	3
AERO ENG 3877	3	AERO ENG 3171	3
ELEC ENG 2800	3	AERO ENG 4882	2
MET ENG 2110	<u>3</u>	Elective/Ethics ⁹	3
Electives-Advanced Math/Cmp Sci ⁵	3	Elective/Communications ⁷	3
	15		17
Senior Year			
First Semester	Credits	Second Semester	Credits
AERO ENG 4535	3	AERO ENG 4781 or 4791	3
AERO ENG 4253	3	Electives-Technical ⁶	3
AERO ENG 4780 or 4790	3	Electives-Technical ⁶	3
AERO ENG 4883	2	AERO ENG 4885	1
Electives-Technical ⁶	3	Electives-Hum/Soc Sci	3
Depth Elective/Hum/Soc Sci ⁸	3	Elective/Literature	3
	17		16
Total Credits: 128			

1

The programming elective consists of a lecture and lab combination, and may be selected from [COMP SCI 1972/COMP SCI 1982](#), or [COMP SCI 1570/COMP SCI 1580](#). Note that [COMP SCI 1570/COMP SCI 1580](#) requires one more credit hour.

2

Must be one of the following: [POL SCI 1200](#), [HISTORY 1200](#), [HISTORY 1300](#), or [HISTORY 1310](#).

3

Must be one of the following: [ECON 1100](#) or [ECON 1200](#).

4

A grade of "C" or better in [CHEM 1310](#), [MATH 1214](#) or [MATH 1211](#), [MATH 1215](#), [MATH 2222](#), [MATH 3304](#), [PHYSICS 1135](#), [PHYSICS 2135](#), [CIV ENG 2200](#), [CIV ENG 2210](#), and computer programming elective, [AERO ENG 2360](#), [AERO ENG 2861](#), and [MECH ENG 2519](#), as prerequisite for follow-up courses in the curriculum and for graduation.

5

Must be one of the following: [AERO ENG 5830](#), [COMP SCI 3200](#), [MATH 3108](#), [STAT 3113](#), [STAT 3115](#), or any 5000-level math or computer science course approved by the student's advisor.

6

Electives must be approved by the student's advisor. Nine hours of technical electives must be in mechanical and aerospace engineering. Three hours of departmental technical electives must be at the 5000-level. [AERO ENG 3877](#) and the 5000-level Asteroid Mining course co-listed with geological engineering are not to be used for 5000-level technical elective.

7

This course can be selected from [ENGLISH 1160](#), [ENGLISH 3560](#), [SP&M S 1185](#), or the complete four-course sequence in advanced ROTC ([MIL ARMY 3250](#), [MIL ARMY 3500](#), [MIL ARMY 4250](#), and [MIL ARMY 4500](#); or [MIL AIR 3110](#), [MIL AIR 3120](#), [MIL AIR 4110](#) and [MIL AIR 4120](#)).

8

To satisfy the depth requirement, this course should have a humanities and social science course already taken as a prerequisite.

9

Must be a course on engineering ethics, business ethics, bio ethics, social ethics, or any ethics course approved by the student's advisor.

Justification for request

This DC form is being resubmitted after a rollback due to a problem with the effective date. The effective date is changed from Fall 2023 to Fall 2024.

1. Aero Eng 3877 is being replaced with Mt Eng 2110. Mt Eng 2110 is similar in content and is offered every semester.
2. Aero Eng 4780 is being changed from 2 credits to 3 credits. This makes it consistent with the alternative course Aero Eng 4790. The CC form to change the credit hours of Aero Eng 4780 has already been approved with an effective date of Fall 2024. This DC change reflects the hours in the curriculum.
3. Chem 1100 is being deleted as a requirement. The Aero Eng degree does not need this safety training as part of its curriculum. Other engineering programs at S&T do not require it. Transfer students are not expected to take it. This reduction of 1 credit hour offsets the increase in one hour for AE 4780, keeping the total credits at 128.
4. The programming elective options are the same, but are being shown as a footnote to allow the difference in credit hours for the elective options to be moved out of the primary degree plan. This way, the primary degree plan shows as 128 credits rather than 128 or 129 credits.

Supporting Documents

Course Reviewer Comments

jpnfd (05/05/23 2:46 pm): Rollback: Rolled back because the credit hour change to Aero Eng 4780 is an affecting change that cannot be effective for Fall 2023. The Aerospace Engineering BS DC form can be approved simultaneously with Aero Eng 4780 in Fall 2024. See email 5/5/23.

Program Change Request

Date Submitted: 02/21/24 10:43 am

Viewing: **AI-CT : AI, Mach Lrn & Auto for Bus CT**

File: 292.14

Last approved: 02/03/21 10:50 am

Last edit: 02/29/24 9:14 am

Changes proposed by: cecq8z

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

Start Term

Fall 2021

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

Approval Path

1. 02/21/24 10:41 am
Cassie Elrod
(cassa): Rollback to Initiator
2. 02/21/24 11:04 am
Cassie Elrod
(cassa): Approved for RINFSCTE Chair
3. 02/29/24 9:15 am
Jennifer Pohlsander
(jpnfd): Approved for CCC Secretary
4. 02/29/24 9:42 am
Cecil Eng Huang Chua (cchua):
Approved for Social Sciences DSCC Chair
5. 03/19/24 7:46 am
Jennifer Pohlsander
(jpnfd): Approved for Pending CCC Agenda post

History

1. Jun 12, 2019 by ershenb
2. Jul 1, 2020 by Cecil Eng Huang Chua (cchua)
3. Feb 3, 2021 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	Database Marketing
BUS 6723	Artificial Intelligence, Robotics, and Information Systems Management
IS&T 6723	Artificial Intelligence, Robotics, and Digital Transformation
ERP 6220	Data Modeling & Visualization Prototyping for Enterprise Decision Dashboard

Justification for request

IST 5445 to be deleted from catalog.

Supporting Documents

[Revised-AIMachine Learning and Automation-BIT-approval.pdf](#)

Course Reviewer Comments

cassa (02/21/24 10:41 am): Rollback: Please update BUS 6723 to IST 6723 - it is reflected on the approvals from the Provost's office so it should be good to go.

jpnfd (02/29/24 9:14 am): Per email from Dr. Raper 2/29/24, this is considered a minor change and will follow the Graduate Certificate Approval process for minor changes.

Program Change Request

Date Submitted: 02/14/24 7:50 am

Viewing: **ANA&DTA-CT : Bus Analytics & Data Sci CT**

File: 293.16

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

Last edit: 02/29/24 9:15 am

Changes proposed by: cecq8z

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

Start Term

Fall 2021

Program Code

ANA&DTA-CT

Department

Business and Information Technology

Title

Bus Analytics & Data Sci 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

Approval Path

1. 02/21/24 10:46 am
Cassie Elrod (cassa): Approved for RINFSCTE Chair
2. 02/29/24 9:15 am
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 02/29/24 9:42 am
Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 03/19/24 7:46 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jun 12, 2019 by ershenb
2. Mar 4, 2021 by Cecil Eng Huang Chua (cchua)

Business Analytics and Data Science

Data analytics facilitates realization of objectives by identifying trends, creating predictive models for forecasting, and optimizing business processes for enhanced performance. Three main categories of analytics are:

- Descriptive - the use of data to find out what happened in the past.
- Predictive - the use of data to find out what could happen in the future.
- Prescriptive - the use of data to prescribe the best course of action for the future.

Big data is an emerging phenomenon. Computing systems today are generating 15 petabytes of new information every day—eight times more than the combined information in all the libraries in the U.S.; about 80% of the data generated every day is textual and unstructured data.

This graduate certificate is one of three graduate certificates offered by cooperating departments at Missouri S&T to fulfill the needs in the area described as "big data." The other two graduate certificates are:

- Big Data and Security
- Big Data Management and Analytics

Required Core Courses:	
IS&T 5420	Business Analytics and Data Science
IS&T 5450	Introduction to Information Visualization
One course from the following:	
BUS 5730	Machine Learning and Artificial Intelligence for Business
IS&T 5520	Data Science and Machine Learning with Python
ERP 5410	Use of Business Intelligence
COMP SCI 5204	Regression Analysis
COMP SCI 5402	Introduction to Data Mining
COMP SCI 6304	Cloud Computing and Big Data Management
COMP ENG 6330	Clustering Algorithms
STAT 5814	Applied Time Series Analysis
One course from the following:	
IS&T 5445	Database Marketing
IS&T 5535	Machine Learning Algorithms and Applications
IS&T 6443	Information Retrieval and Analysis
IS&T 6641	Advanced Digital Commerce and IoT Analytics
IS&T 6444	Essentials of Data Warehouses
IS&T 6448	Building the Data Warehouse
IS&T 6887	Research Methods in Business and IS&T
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 Dashboard
BUS 6425	Supply Chain and Project Management

Justification for request

Removing courses that are to be deleted from the course catalog

Supporting Documents

~~[Grad CT Revised.pdf](#)~~

[Revised-Business Analytics and Data Science-BIT.pdf](#)

Course Reviewer Comments

jpndf (02/29/24 9:15 am): Per email from Dr. Raper 2/29/24, this is considered a minor change and will follow the Graduate Certificate Approval process for minor changes.

Program Change Request

Date Submitted: 02/01/24 4:58 pm

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

File: 147.28

Last approved: 06/01/23 3:52 pm

Last edit: 02/06/24 1:19 pm

Changes proposed by: shannonk

Catalog Pages Using this Program

[Biological Sciences](#)

Start Term

Fall 2023

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

Approval Path

1. 02/02/24 7:58 am
David Duvernell (duvernellid): Approved for RBIOLSCI Chair
2. 02/06/24 1:19 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/18/24 9:36 am
Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 03/19/24 7:46 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Aug 1, 2014 by Katie Shannon (shannonk)
2. Feb 1, 2016 by 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)

6. Feb 3, 2021 by
Katie Shannon
(shannonk)
7. Jun 14, 2022 by
Katie Shannon
(shannonk)
8. Apr 14, 2023 by
Katie Shannon
(shannonk)
9. Jun 1, 2023 by
Jennifer Pohlsander
(jpnfd)

Bachelor of Science Biological Sciences Degree Requirements

A minimum of ~~120~~ 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 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 two laboratory courses from the following:		
BIO SCI 2242	Cave Biology	2
BIO SCI 2252	Vegetation of the Ozarks	2
BIO SCI 2264	Field Ecology	2
BIO SCI 2359	Zoology Laboratory	1
BIO SCI 2389	Plant Biology Laboratory	1
BIO SCI 3319	Microbiology Lab	2
BIO SCI 3339	Human Anatomy Physiology I Lab	1
BIO SCI 3349	Human Anatomy and Physiology II Laboratory	1
BIO SCI 3353	Comparative Vertebrate Anatomy	4
BIO SCI 3359	Physiology Lab	1

BIO SCI 4099	Undergraduate Research (minimum 2 hours)	1-3
BIO SCI 4329	Molecular Genetics Laboratory	2
BIO SCI 4369	Freshwater Ecology Laboratory	1
BIO SCI 5453	Forest Insect Diversity & Ecology	2
BIO SCI 5523	Ichthyology	4
17 semester hours of chemistry to include general chemistry		
CHEM 1310	General Chemistry I	4
CHEM 1319	General Chemistry Laboratory	1
CHEM 1320	General Chemistry II	3
CHEM 1100	Introduction To Laboratory Safety & Hazardous Materials	1
CHEM 2210	Organic Chemistry I	3
CHEM 2219	Organic Chemistry I Lab	1
CHEM 2220	Organic Chemistry II	3
CHEM 2229	Organic Chemistry II Lab	1
2 semesters of College (Engineering) Physics and labs		
PHYSICS 1145	College Physics I	4
or PHYSICS 1135	Engineering Physics I	
PHYSICS 2145	College Physics II	4
or PHYSICS 2135	Engineering Physics II	
Math and Statistics		
STAT 3425	Introduction to Biostatistics	4
MATH 1211	Calculus I-B	4
or MATH 1212	Survey of Calculus	
or MATH 1214	Calculus I	
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	

Elective credits: In consultation with his or her advisor, each student will elect sufficient additional courses to complete a minimum of 120 ~~124~~ credit hours.

Justification for request

reducing total hours to 120 because administration wants us to

not sure how to edit the approved out of department courses since they don't appear here but are on the degree audit. Psychology 4412 appears on the degree audit but isn't a course that is offered, it should be changed to Psychology 4411, Sensation and Perception

Supporting Documents

Course Reviewer Comments

jpndf (02/06/24 1:19 pm): The psychology courses in the degree audit have been addressed outside of curriculum. No updates are needed on this form regarding the psych courses.

Program Change Request

Date Submitted: 10/17/23 8:37 am

Viewing: **BUS&MS-MI : Business Minor**

File: 11.8

Last approved: 02/23/21 2:47 pm

Last edit: 02/22/24 1:34 pm

Changes proposed by: cecq8z

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

Start Term

[Fall 2024](#) ~~Spring 2021~~

Program Code

BUS&MS-MI

Department

Business and Information Technology

Title

Business Minor

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

Approval Path

1. 02/21/24 11:17 am
Cassie Elrod (cassa): Approved for RBUSADMN Chair
2. 02/22/24 1:36 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 02/22/24 2:29 pm
Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 03/19/24 7:47 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Aug 5, 2014 by pantaleoa
2. Jul 14, 2015 by pantaleoa
3. Oct 28, 2020 by Marita Raper (tibbetmsg)
4. Feb 23, 2021 by Marita Raper (tibbetmsg)

Minor in Business

The minor in business and management systems requires the following 15 hours of coursework:

FINANCE 2150	Corporate Finance I	3
ECON 1100	Principles Of Microeconomics	3
or ECON 1200	Principles Of Macroeconomics	
BUS 1110	Introduction to Management and Entrepreneurship	3
BUS 1210	Financial Accounting	3
MKT 3110	Marketing	3

Justification for request

BUS 1414 is being deleted

Supporting Documents

Course Reviewer Comments

jpnfd (02/22/24 1:33 pm): Updated term to Fall 2024.

jpnfd (02/22/24 1:34 pm): Updated start term.

Program Change Request

Date Submitted: 03/05/24 10:47 am

Viewing: **CM ENG-CT : Carbon Management Engineering CT**

File: 386.13

Last approved: 07/13/22 11:49 am

Last edit: 03/05/24 3:34 pm

Changes proposed by: jcwang

Catalog Pages Using this Program
[Chemical & Biochemical Engineering](#)

Start Term

Fall ~~2022~~ 2024

Program Code

CM ENG-CT

Department

Chemical and Biochemical Engineering

Title

Carbon Management 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

Approval Path

1. 03/05/24 11:41 am
Hu Yang (huyang): Approved for RCHEMENG Chair
2. 03/05/24 3:35 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/08/24 8:17 am
Mark Fitch (mfitch): Approved for Engineering DSCC Chair
4. 03/19/24 7:47 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. May 2, 2022 by Jee C. Wang (jcwang)
2. May 3, 2022 by Crystal Wilson (wilsoncry)
3. May 4, 2022 by Crystal Wilson (wilsoncry)
4. Jul 13, 2022 by Jennifer Pohlsander (jpnfd)

Carbon Management Engineering Certificate

The Carbon Management Engineering Certificate Program introduces the students to carbon management strategies related to the engineering principles of carbon capture, transformation, and storage. It is open to all persons holding a B.S., M.S., or Ph.D. degree in chemical engineering, petroleum engineering, mechanical engineering, or a closely allied discipline, including those who are currently accepted into a graduate degree program at Missouri S&T. It requires the students to complete three carbon management courses offered by Chemical and Biochemical Engineering (ChBE), Mechanical and Aerospace Engineering (MAE), and Geosciences and Geological and Petroleum Engineering (GGPE), respectively, plus an additional course to be selected from a variety of existing courses from these same departments.

In order to be admitted, a student must have an overall GPA of 3.0, or 2.75 with a minimum of one year of work experience. Once admitted to the program, the student must take the four designated courses. To receive the certificate, the student must have an average cumulative grade point of 3.0 or better in the certificate courses. Once admitted to the certificate program, a student will be given three years to complete the program.

Students admitted to the Carbon Management Engineering Certificate Program will have non-degree graduate status but will earn graduate credit for the courses they complete. If the students complete the four-course sequence with a grade of B or better in each of the courses taken, they, upon application, will be automatically admitted to the non-thesis MS degree program that is appropriate based on the undergraduate program from which they graduated in either Chemical Engineering, Petroleum Engineering, or Mechanic Engineering. Students may also apply and be considered for admission to thesis-based MS or PhD programs in the same areas. The certificate credits taken by the students admitted to any of these degree programs will count towards their degree requirements.

The following three courses are required:		
CHEM ENG 5325	Carbon Capture Process Engineering	3
PET ENG 5050	Carbon Storage	3
MECH ENG 5535	Carbon Conversion and Energy Utilization	3

One 3-credit course selected from the following list:		
CHEM ENG 4540	Course CHEM ENG 4540 Not Found	3
CHEM ENG 5100	Intermediate Transport Phenomena	3
CHEM ENG 5110	Intermediate Chemical Reactor Design	3
CHEM ENG 5120	Interfacial Phenomena In Chemical Engineering	3
CHEM ENG 5150	Intermediate Process Computing	3
CHEM ENG 5161	Intermediate Molecular Engineering	3
CHEM ENG 5170	Physical Property Estimation	3
CHEM ENG 5190	Plantwide Process Control	3
CHEM ENG 5220	Intermediate Engineering Thermodynamics	3
CHEM ENG 5330	Alternative Fuels	3
CHEM ENG 5340	Principles of Environmental Monitoring	3
CHEM ENG 5350	Environmental Chemodynamics	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
GEOPHYS 4231	Seismic Interpretation	3
GEOPHYS 5202	Exploration and Development Seismology	3
GEOLOGY 5311	Depositional Systems	3
GEOLOGY 5511	Applied Petroleum Geology	3
GEOLOGY 5513	Petroleum Geology	3
GEOLOGY 5661	Advanced Stratigraphy and Basin Evolution	3

GEOLOGY 6511	Advanced Petroleum Geology	3
GEOLOGY 6621	Clastic Sedimentary Petrology	3
GEOLOGY 6811	Sedimentary Basin Analysis	3
PET ENG 4111	Fundamental Digital Applications In Petroleum Engineering	3
PET ENG 4210	Drilling and Well Integrity	3
PET ENG 4311	Reservoir Characterization	3
PET ENG 4590	Subsurface Energy Economics	3
PET ENG 4720	Reservoir Geomechanics	3
PET ENG 6621	Advanced Applied Reservoir Simulation	3
PET ENG 6711	Geodynamics	3
MECH ENG 5229	Smart Materials And Sensors	3
MECH ENG 5420	Signal Processing for Instrumentation and Control	3
MECH ENG 5523	Transport Phenomena In Manufacturing Processes	3
MECH ENG 5527	Combustion Processes	3
MECH ENG 5533	Internal Combustion Engines	3
MECH ENG 5537	Fuel Cell Principles	3
MECH ENG 5541	Applied Energy Conversion	3
MECH ENG 5543	Energy Efficiency of Vehicles	3
MECH ENG 5544	Non-Intrusive Measurement Methods	3
MECH ENG 5566	Solar Energy Technology	3
MECH ENG 5571	Environmental Controls	3
MECH ENG 5757	Integrated Product And Process Design	3
MECH ENG 5764	Introduction to Decision Analysis	3

Justification for request

CHEM ENG 4540 is no longer an active course.

Supporting Documents

[GRCT Carbon Mgmt EngPC Form CORRECTED.pdf](#)

Course Reviewer Comments

jpnfd (03/05/24 3:34 pm): Updated effective term to Fall 2024.

Program Change Request

Date Submitted: 03/01/24 10:28 am

Viewing: **CP ENG-BS : Computer Engineering BS**

File: 153.98

Last approved: 01/29/24 3:22 pm

Last edit: 03/01/24 10:28 am

Changes proposed by: stanleyj

Catalog Pages Using this Program

[Computer Engineering](#)

Start Term

Fall 2024

Program Code

CP ENG-BS

Department

Electrical and Computer Engineering

Title

Computer Engineering BS

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

Approval Path

1. 03/01/24 10:55 am
Jonathan Kimball (kimballjw):
Approved for RELECENG Chair
2. 03/04/24 11:29 am
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/05/24 1:02 pm
Mark Fitch (mfitch):
Approved for Engineering DSCC Chair
4. 03/19/24 7:47 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Aug 6, 2014 by R.Joe Stanley (stanleyj)
2. Aug 13, 2014 by pantaleoa
3. Sep 21, 2015 by kleb6b
4. Apr 25, 2016 by R.Joe Stanley (stanleyj)
5. Dec 1, 2016 by R.Joe Stanley (stanleyj)
6. Sep 19, 2017 by R.Joe Stanley

- (stanleyj)
7. Jun 18, 2018 by R.Joe Stanley (stanleyj)
 8. Nov 2, 2018 by R.Joe Stanley (stanleyj)
 9. May 2, 2019 by R.Joe Stanley (stanleyj)
 10. May 14, 2019 by ershenb
 11. Mar 3, 2020 by R.Joe Stanley (stanleyj)
 12. May 2, 2022 by R.Joe Stanley (stanleyj)
 13. Sep 26, 2022 by R.Joe Stanley (stanleyj)
 14. Jun 7, 2023 by R.Joe Stanley (stanleyj)
 15. Jan 29, 2024 by R.Joe Stanley (stanleyj)

Bachelor of Science Computer Engineering¹

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

Electrical and Computer Engineering degree programs will require a minimum of 21 credit hours of humanities/social-sciences as specified below:

- [ENGLISH 1120](#)
- [HISTORY 1200](#) or [HISTORY 1300](#) or [HISTORY 1310](#) or [POL SCI 1200](#)
- [ECON 1100](#) or [ECON 1200](#)
- Technical Communication Elective: [ENGLISH 1160](#) or [ENGLISH 3560](#)
- [SP&M S 1185](#)
- The remaining minimum of 6 additional credit hours must be three-credit hour lecture courses offered in disciplines in the humanities and social sciences. Humanities courses are defined as those in: Art, English and Technical Communication, Etymology, Foreign Languages, Music, Philosophy, Speech and Media Studies, and Theatre. Social Sciences courses are defined as those in: Economics, History, Political Science, and Psychology. Study abroad courses may count as H/SS courses. H/SS courses numbered 2001, 3001, and 4001 (experimental courses) may also be used to complete these elective requirements.

Courses in business, education, information science and technology, or any other discipline not listed above will **not** satisfy the humanities/social sciences elective requirement, although such courses may count toward general education requirements. Transfer credits from other universities in sociology and general humanities may count as humanities or social science electives.

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

Free Electives Footnote:

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

Freshman Year			
First Semester	Credits	Second Semester	Credits
FR ENG 1100 ²	1	COMP SCI 1500	3
MATH 1214 or 1211 ^{3,21}	4	MATH 1215 ³	4
CHEM 1310	4	PHYSICS 1135 ^{3,4}	4
CHEM 1319	1	ECON 1100 or 1200	3
HISTORY 1200 , or 1300 , or 1310 , or POL SCI 1200	3	Elective-Hum or Soc (any level) ⁵	3
ENGLISH 1120	3		
	16		17
Sophomore Year			
First Semester	Credits	Second Semester	Credits
ELEC ENG 2100 ^{3,6,7}	3	COMP ENG 2210 ^{3,6,8}	3
ELEC ENG 2101 ^{3,6}	1	COMP ENG 2211 ^{3,6}	1
MATH 2222 ³	4	ELEC ENG 2120 ^{3,7,9}	3
COMP SCI 1570 ³	3	MATH 3304 ³	3
COMP SCI 1580 ³	1	COMP SCI 1200 ³	3
PHYSICS 2135 ^{3,4}	4	COMP SCI 1575	3
	16		16
Junior Year			
First Semester	Credits	Second Semester	Credits
COMP ENG 3110 ^{3,8}	3	COMP ENG Elective A ^{3,14}	3
COMP ENG 3150 ^{3,6,8}	3	ELEC ENG 3410 ^{3,6,9}	3
COMP ENG 3151 ^{3,6,8}	1	COMP SCI 3800 or 2500 ³	3
ELEC ENG 2200 ^{3,6,7}	3	STAT 3117 ¹²	3
ELEC ENG 2201 ^{3,6,7}	1	Communication Elective ¹³	3
Mathematics Elective ¹⁰	3		
SP&M S 1185 ¹³	3		
	17		15
Senior Year			
First Semester	Credits	Second Semester	Credits
COMP ENG 5410 ³	3	COMP ENG Elective D ^{3,15,16}	3
COMP ENG Elective C ^{3,19}	3	COMP ENG Elective E ^{3,15,16}	3
COMP ENG 4096 ^{3,17}	1	COMP ENG 4097 ^{3,17}	3
Elective-Hum or Soc (any level) ⁵	3	Professional Development Elective ²⁰	3
Engineering Science Elective ¹¹	3	Free Elective ¹⁸	3
COMP ENG Elective B ^{3,14}	3		
	16		15
Total Credits: 128			

2

Students that transfer to Missouri S&T after their freshman year are not required to enroll in Foundational Engineering and Computing Seminars.

3

A minimum grade of "C" must be attained in [MATH 1214](#) or [MATH 1211](#), [MATH 1215](#), [MATH 2222](#), and [MATH 3304](#), [PHYSICS 1135](#) and [PHYSICS 2135](#) (or their equivalents), [COMP SCI 1570](#), [COMP SCI 1580](#), [COMP SCI 1575](#), [COMP SCI 1200](#), [COMP SCI 2500](#) or [COMP SCI 3800](#), [COMP ENG 2210](#), [COMP ENG 2211](#), [COMP ENG 3150](#), [COMP ENG 3151](#), [COMP ENG 3110](#), [COMP ENG 5410](#), [COMP ENG 4096](#), and [ELEC ENG 2100](#), [ELEC ENG 2101](#), [ELEC ENG 2120](#), [ELEC ENG 2200](#), [ELEC ENG 2201](#), and [ELEC ENG 3410](#) and the COMP ENG electives A, B, C, D and E. Also, students may not enroll in other courses that use these courses as prerequisites until the minimum grade of "C" is attained.

4

Students may take [PHYSICS 1111](#) and [PHYSICS 1119](#) in place of [PHYSICS 1135](#). Students may take [PHYSICS 2111](#) and [PHYSICS 2119](#) in place of [PHYSICS 2135](#).

5

All electives must be approved by the student's advisor. Students must comply with the general education requirements with respect to selection and depth of study. These requirements are specified in the current catalog.

6

Students who drop a lecture course prior to the deadline to drop a class must also drop the corequisite lab course.

7

Students must earn a passing grade on the ELEC ENG Advancement Exam I (associated with [ELEC ENG 2100](#)) before they enroll in [ELEC ENG 2120](#) or [ELEC ENG 2200](#) and [ELEC ENG 2201](#).

8

Students must earn a passing grade on the COMP ENG Advancement Exam (associated with [COMP ENG 2210](#)) before they enroll in any course with [COMP ENG 2210](#) and [COMP ENG 2211](#) as prerequisites.

9

Students must earn a passing grade on the ELEC ENG Advancement Exam II (associated with [ELEC ENG 2120](#)) before they enroll in [ELEC ENG 3410](#).

10

Students must take one of the following courses:

[MATH 3108](#), [MATH 3109](#), [MATH 5302](#), [MATH 5603](#), [MATH 5105](#), [MATH 5106](#), [MATH 5107](#), [MATH 5108](#), [MATH 4209](#), [MATH 4211](#), [MATH 5215](#), [MATH 5222](#), [MATH 5325](#), [MATH 4530](#), [MATH 5737](#), [MATH 5351](#), [MATH 5154](#), [MATH 4096](#), [MATH 5483](#), [MATH 5585](#), [STAT 5644](#), [STAT 5346](#), [STAT 5353](#).

11

Students must take one of [MECH ENG 2340](#), [MECH ENG 2519](#), [MECH ENG 2527](#), [PHYSICS 2311](#), [PHYSICS 2401](#), [CHEM 2210](#), [BIO SCI 2213](#), [BIO SCI 2223](#), [CIV ENG 2200](#), [MECH ENG 2350](#), [PHYSICS 2305](#), [PHYSICS 4311](#), [CER ENG 4240](#), or [NUC ENG 3205](#).

12

Students may replace [STAT 3117](#) with [STAT 3115](#) or [STAT 5643](#).

13

Student must take [ENGLISH 3560](#) or [ENGLISH 1160](#). Students may replace [SP&M S 1185](#) with the ROTC sequence of [MIL ARMY 4250](#) and [MIL ARMY 4500](#) or [MIL AIR 4110](#) and [MIL AIR 4120](#)

14

Comp Eng Senior Electives A and B, respectively, must be selected from 4xx or 5xx courses in Comp Eng, except Comp Eng 4000, 4099, 4096, 4097, 5000, and 5099. The two courses selected for electives A and B, respectively, should be from two different Comp Eng emphasis areas. The emphasis areas, with course number options, are as follows:

Integrated Circuits and Logic Design: 42xx/52xx

Computational Intelligence 53xx

Computer Architecture and Embedded Systems: 41xx/51xx, 45xx/55xx, 46xx/56xx

Networking, Security, and Reliability: 44xx/54xx, except Comp Eng 5410

15

Comp Eng Senior Electives D and E must be selected from an approved list that contains most 3xx, 4xx and 5xx courses in science, mathematics, and engineering except required courses in Comp Eng, Elec Eng, and Comp Sci and except COMP SCI 3610 and COMP SCI 5600.

16

COMP ENG Electives D and E cannot include more than three hours of Comp Eng/Elec Eng 3002, Comp Eng/Elec Eng/Comp Sci 4000 or 4099.

17

Students pursuing dual degrees in COMP ENG and ELEC ENG may take either [COMP ENG 4096](#) or [ELEC ENG 4096](#) and [COMP ENG 4097](#) or [ELEC ENG 4097](#). Students may not receive credit for both [COMP ENG 4096](#) and [ELEC ENG 4096](#) or [COMP ENG 4097](#) and [ELEC ENG 4097](#) in the same degree program.

18

Students are required to take at least three credit hours. [ELEC ENG 2800](#) level, [ELEC ENG 4096](#), [ELEC ENG 4097](#), [COMP ENG 4096](#) and [COMP ENG 4097](#) may not be used for free electives. No more than one credit hour of [COMP ENG 3002](#) or [ELEC ENG 3002](#) may be applied to the BS degree for free electives.

19

Comp Eng Senior Elective C must be selected from 3xx, 4xx or 5xx courses in Comp Eng, Elec Eng, or Comp Sci, except Comp Eng/Elec Eng/Comp Sci 3000, 4000, 4096, 4097, 4099, 5000, and 5099 and Comp Sci 4010, 3610 and 5600.

Students must take one of the following courses: [BUS 5980](#), [ECON 4430](#), [ECON 5337](#), [ENG MGT 2310](#), [ENG MGT 3320](#), [ENG MGT 4110](#), [ENG MGT 5514](#), [PHILOS 3225](#).

The course combination [MATH 1210](#) and [MATH 1211](#) may be taken in place of [MATH 1214](#).

~~An accelerated BS/MS program is optional.~~ Emphasis Areas for Computer Engineering

A declared emphasis area is not required. A student may choose to obtain a Computer Engineering degree without a formal emphasis or may choose to obtain a Computer Engineering degree with a declared emphasis in one or more of the emphasis areas of computer engineering. A major change request is required to add the emphasis area option to the degree program.

Emphasis areas that may be declared, include: **Integrated Circuits and Logic Design, Computer Architecture and Embedded Systems, and Networking, Security, and Dependability**. Note that **Computational Intelligence** is also a Computer Engineering emphasis area but is focused in the graduate program.

For students who seek a Computer Engineering degree without a formal emphasis, these emphasis areas may guide the choice of their COMP ENG Electives A, B, C, D, and E as well as their free electives. Students should consult with their advisors on such course selections.

For students who seek a Computer Engineering degree with a declared emphasis, courses in the declared emphasis area will be applied to COMP ENG Electives A, C, and D in the degree requirements. For students who choose to have multiple emphasis areas, the additional courses will apply to COMP ENG Electives B and E and free elective requirements. Students should seek guidance from their advisors on emphasis areas and on courses that are relevant to more than one emphasis area. Students may have an emphasis area or emphasis areas listed on their transcript by completing **three three-credit-hour courses** in computer engineering from the designated lists. For a single emphasis area, this requirement will be satisfied by completing the relevant 4XXX-level or above course for Elective A and 3XXX-level or above courses for Electives C and D from the designated emphasis area course list. For a second emphasis area, this requirement will be satisfied by completing the relevant 4XXX-level or above course for Elective B, a 3XXX-level or above course for Electives E, and a 3XXX-level or above course for the free elective from the designated second emphasis area course list. Courses not on the emphasis area list, including experimental courses (5001) require departmental approval to apply toward the designated emphasis area.

Computer Engineering Course List Designations:

Integrated Circuits and Logic Design	9
COMP ENG 42XX and COMP ENG 52XX Courses	
Computer Architecture and Embedded Systems	9
COMP ENG 41XX, COMP ENG 51XX, COMP ENG 45XX, COMP ENG 55XX, COMP ENG 46XX, and COMP ENG 56XX Courses	
Networking, Security, and Dependability	9
COMP ENG 44XX and COMP ENG 54XX Courses, Except COMP ENG 5410	
Computational Intelligence	9
COMP ENG 53XX Courses	

~~Accelerated BS/MS Program Option for EE and CpE Majors Electrical engineering or computer engineering undergraduates in ECE at Missouri S&T may opt to apply for an accelerated BS/MS ECE program where a student can achieve both degrees faster than if pursuing the degrees separately. The degrees may be BS EE and MS EE, BS CpE and MS CpE, BS EE and MS CpE, or BS CpE and MS EE. The benefits of the program for admitted students are: Undergraduate and graduate courses may be chosen with greater flexibility, Up to nine hours of 5000-level or above ECE coursework may apply to both the BS and MS requirements, The classes taken for shared BS/MS credit may be taken at the lower undergraduate tuition rate, The GRE is not required for admission, Other graduate credit courses may be taken anytime after entering the program, and Work on a thesis project may begin before the BS requirements are completed. To be eligible for the accelerated BS/MS ECE program, an EE or CpE undergraduate must be at or beyond the junior level with a minimum of 60 credit hours and must have completed 18 credit hours of EE and/or CpE courses at Missouri S&T with at least a 3.50 GPA in the ECE courses. To be admitted, the student must complete the program application and must have the recommendation of an ECE faculty member who agrees to serve as the graduate thesis advisor. No other MS degree requirements are changed. The MS degree must be for the thesis option. The program may be combined with existing honors research and emphasis area options. Admitted students~~

~~will have both undergraduate and graduate records in the Registrar's Office. The Accelerated program application must be completed within one semester after the shared-credit courses are completed. Courses taken for shared credit will be identified on this application form and on Graduate Form 1, which is submitted after the student enters the graduate program. The nine hours of shared-credit coursework will be taken as undergraduate credit, and may not be undergraduate research, special problems, or transfer courses (a co-listed course can only apply for these undergraduate requirements if it is under an EE or CpE registration. Note that the choice of EE or CpE registration may affect how a course can apply within an MS program.) An additional nine credit hours of coursework for graduate credit (beyond the shared BS/MS credits) can be taken while in the undergraduate program by applying for dual undergraduate/graduate enrollment. Taking additional courses for graduate credit will require formal application to the graduate program. Acceptance to the MS degree from the Accelerated Program is automatic so long as the student meets ECE graduate student academic performance requirements. To remain in the program, the student must maintain good standing within the undergraduate EE or CpE program and must maintain continuous enrollment at Missouri S&T. If the student exits the program before completion of the MS degree requirements or fails to maintain continuous enrollment at Missouri S&T, the shared-credit courses may not apply toward graduate requirements in the event of future readmission. The student is responsible for checking on how dual-enrollment status and graduate coursework will affect scholarships and other financial aid. Once you become a graduate student, you are not eligible for Federal Pell Grants, though are still eligible for Federal Financial Aid and will be eligible for fellowships and teaching/research assistantships. International students should check with international affairs during completion of an accelerated BS/MS to ensure immigration status will be maintained throughout the program.~~

Justification for request

Electrical and Computer Engineering has approved (Spring 2024) the Grad Track Program for early provisional admission to the MS program, so the Accelerated BS/MS Program is no longer an option. References to the Accelerated BS/MS Program need to be removed from the Cp Eng-BS program, which include the description of the Accelerated BS/MS Program at the end of the Cp Eng-BS program, footnote 14, and after footnote 21.

Supporting Documents

Course Reviewer Comments

Program Change Request

Date Submitted: 02/14/24 7:52 am

Viewing: **DATA WR-CT : Business Intelligence CT**

File: 294.7

Last approved: 02/03/21 10:51 am

Last edit: 02/22/24 1:50 pm

Changes proposed by: cecq8z

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

Start Term

Fall ~~2024~~ 2024

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

Approval Path

1. 02/21/24 10:51 am
Cassie Elrod (cassa): Approved for RBUSADMN Chair
2. 02/22/24 1:51 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 02/22/24 2:29 pm
Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 03/19/24 7:47 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jun 12, 2019 by ershenb
2. Feb 3, 2021 by Cecil Eng Huang Chua (cchua)

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 Dashboard
IS&T 6443	Information Retrieval and Analysis
IS&T 5445	Database Marketing

Justification for request

Removal of course to be deleted from graduate catalog

Supporting Documents

[Revised-Business Intelligence-BIT-approved.pdf](#)

Course Reviewer Comments

jpnfd (02/22/24 1:50 pm): Added start term Fall 2024.

Program Change Request

A deleted record cannot be edited

Program Deactivation Proposal

Date Submitted: 03/05/24 2:17 pm

Viewing: **DIGITMD-CT : Digital Media & Web Design CT**

File: 296.10

Last approved: 06/10/21 4:11 pm

Last edit: 03/13/24 11:06 am

Changes proposed by: cecq8z

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

Start Term

Fall ~~2021~~ 2024

Program Code

DIGITMD-CT

Department

Business and Information Technology

Title

Digital Media & Web Design 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

Approval Path

1. 03/12/24 4:01 pm
Cassie Elrod (cassa): Approved for RINFSCTE Chair
2. 03/13/24 11:10 am
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/13/24 4:13 pm
Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 03/19/24 7:47 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jun 12, 2019 by ershenb
2. Jun 10, 2021 by Cecil Eng Huang Chua (cchua)

Digital media is growing as consumers change the way they access information. In pursuing this certificate, students will acquire the skills and knowledge to create, design and analyze digital media. The focus will be on the media itself, the social/digital network that connects these media, the interfaces that connect these media with users, and the application of these skills in business and other creative contexts. Thus this certificate program will address the pressing demand and opportunities for graduates with advanced knowledge and skills in areas such as networked communication and marketing, web-based media creation and design, and methods for designing and building effective human-media interfaces.

A student admitted to this graduate certificate must complete four courses:

Required core course:	
IS&T 6654	Advanced Web Design and Digital Media Studies
Two courses from the following list:	
IS&T 5680	Digital Media Development and Interactive Design
IS&T 5885	Human-Computer Interaction and User Experience
MKT 5310	Digital Marketing and Promotions
One course from the following:	
IS&T 5652	Advanced Web Development
IS&T 5886	Prototyping Human-Computer Interactions
IS&T 5168	Law and Ethics in E-Commerce

Justification for request

Low enrollment

Supporting Documents

Course Reviewer Comments

jpnfd (03/13/24 11:06 am): Deletion of certificate was approved by MDHEWD on 3/1/2024. Email received from the department on 3/5/24 with approval attached.

Program Change Request

A deleted record cannot be edited

Program Deactivation Proposal

Date Submitted: 03/05/24 2:18 pm

Viewing: **E&S COM-CT : Electronic & Social Commerce CT**

File: 298.14

Last approved: 06/10/21 4:11 pm

Last edit: 03/13/24 11:07 am

Changes proposed by: cecq8z

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

Start Term

Fall 2024 ~~2024~~

Program Code

E&S COM-CT

Department

Business and Information Technology

Title

Electronic & Social Commerce 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

Approval Path

1. 03/12/24 4:01 pm
Cassie Elrod (cassa): Approved for RINFSCTE Chair
2. 03/13/24 11:11 am
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/13/24 4:13 pm
Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 03/19/24 7:47 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jun 12, 2019 by ershenb
2. Feb 3, 2021 by Cecil Eng Huang Chua (cchua)
3. Jun 10, 2021 by Cecil Eng Huang Chua (cchua)

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 IoT Analytics
Core Courses (choose one or two):	
IS&T 5251	Management and Leadership of Technological Innovation
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	Fundamentals of Mobile Technology for Business
IS&T 5445	Database Marketing
IS&T 5652	Advanced Web Development
IS&T 5680	Digital Media Development and Interactive Design
IS&T 5885	Human-Computer Interaction and User Experience
IS&T 5886	Prototyping Human-Computer Interactions
MKT 5310	Digital Marketing and Promotions
MKT 6580	Advanced Marketing Strategy

Justification for request

Low enrollment

Supporting Documents

Course Reviewer Comments

jpnfd (03/13/24 11:07 am): Deletion of certificate was approved by MDHEWD on 3/1/2024. Email received from the department on 3/5/24 with approval attached.

Program Change Request

Date Submitted: 02/23/24 8:27 am

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

File: 155.71

Last approved: 09/26/22 9:32 am

Last edit: 02/29/24 8:45 am

Changes proposed by: kte

Catalog Pages Using this Program

[Electrical Engineering](#)

Start Term

Fall 2023

Program Code

EL ENG-BS

Department

Electrical and Computer Engineering

Title

Electrical Engineering BS

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

Approval Path

1. 02/23/24 11:26 am
Jonathan Kimball (kimballjw):
Approved for RELECENG Chair
2. 02/29/24 2:22 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/01/24 4:42 pm
Mark Fitch (mfitch): Approved for Engineering DSCC Chair
4. 03/19/24 7:47 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Aug 6, 2014 by watkins
2. Aug 13, 2014 by pantaleoa
3. Apr 25, 2016 by watkins
4. Jun 18, 2018 by watkins
5. May 15, 2019 by Mehdi Ferdowsi (ferdowsi)
6. Mar 3, 2020 by ershenb
7. Oct 28, 2020 by Marita Raper

- (tibbettsmg)
8. Oct 1, 2021 by
Crystal Wilson
(wilsoncry)
 9. May 2, 2022 by
R.Joe Stanley
(stanleyj)
 10. Sep 26, 2022 by
Kelvin Erickson
(kte)

Bachelor of Science Electrical Engineering¹

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

Electrical and Computer Engineering degree programs will require a minimum of 21 credit hours of humanities/social-sciences as specified below:

- [ENGLISH 1120](#)
- [HISTORY 1200](#) or [HISTORY 1300](#) or [HISTORY 1310](#) or [POL SCI 1200](#)
- [ECON 1100](#) or [ECON 1200](#)
- Technical Communication Elective: [ENGLISH 1160](#) or [ENGLISH 3560](#)
- [SP&M S 1185](#)
- The remaining minimum of 6 additional credit hours must be three-credit hour lecture courses offered in disciplines in the humanities and social sciences. Humanities courses are defined as those in: Art, English and Technical Communication, Etymology, Foreign Languages, Music, Philosophy, Speech and Media Studies, and Theatre. Social Sciences courses are defined as those in: Economics, History, Political Science, and Psychology. Study abroad courses may count as H/SS courses. H/SS courses numbered 2001, 3001, and 4001 (experimental courses) may also be used to complete these elective requirements.

Courses in business, education, information science and technology, or any other discipline not listed above will **not** satisfy the humanities/social sciences elective requirement, although such courses may count toward general education requirements. Transfer credits from other universities in sociology and general humanities may count as humanities or social science electives.

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

Free Electives Footnote:

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

Freshman Year			
First Semester	Credits	Second Semester	Credits
FR ENG 1100 ²	1	MECH ENG 1720	3
CHEM 1310	4	MATH 1215 ³	4
CHEM 1319	1	PHYSICS 1135 ^{3,4}	4
MATH 1214 or 1211 ^{3, 20}	4	ECON 1100 or 1200	3
HISTORY 1200 , or 1300 , or 1310 , or POL SCI 1200	3	Elective-Hum or Soc Sci (any level) ⁵	3
ENGLISH 1120	3		

16

17

Sophomore Year

First Semester	Credits	Second Semester	Credits
ELEC ENG 2100 ^{3,6,7}	3	ELEC ENG 2200 ^{3,6,7,10}	3
ELEC ENG 2101 ^{3,6}	1	ELEC ENG 2201 ^{3,6,7}	4
MATH 2222 ³	4	ELEC ENG 2120 ^{3,7,9}	3
COMP ENG 2210 ^{3,6,8}	3	ELEC ENG 2410 ^{3,6,7}	3
COMP ENG 2211 ^{3,6}	1	ELEC ENG 2411 ^{3,6,7}	1
PHYSICS 2135 ^{3,4}	4	MATH 3304 ³	3
		Engineering Science Elective ¹⁰	3
		COMP SCI 1500	3
	16		16

Junior Year

First Semester	Credits	Second Semester	Credits
ELEC ENG 3100 ^{3,6,9}	3	ELEC ENG 3600 ^{3,9}	4
ELEC ENG 3101 ^{3,6,9}	1	El Eng Elective A ^{13,18}	3
ELEC ENG 3320	3	ELEC ENG 3430	3
ELEC ENG 3321	1	ELEC ENG 3431	1
SP&M S 1185 ¹²	3	STAT 3117 ¹¹	3
MATH 3108	3	Communication Elective ¹²	3
	14		17

Senior Year

First Semester	Credits	Second Semester	Credits
El Eng Power Elective ^{3,6,9,14}	3	El Eng Elective C ¹³	3
El Eng Power Elective Lab ^{3,6,9,14}	1	El Eng Elective E ^{16,18}	3
El Eng Elective B ¹³	3	ELEC ENG 4097	3
El Eng Elective D ^{15,19}	3	Professional Development Elective ¹⁹	3
ELEC ENG 4096 ³	1	Free Elective ¹⁷	3
Free Elective ¹⁷	3		
Elective-Hum or Soc Sci (any level) ⁵	3		
	17		15
Total Credits: 128			

1

The minimum number of hours required for a degree in Electrical Engineering is 128.

2

Students that transfer after their freshman year are not required to enroll in [FR ENG 1100](#).

3

A minimum grade of "C" must be attained in [MATH 1214](#), [MATH 1215](#), [MATH 2222](#), and [MATH 3304](#), [PHYSICS 1135](#) and [PHYSICS 2135](#) (or their equivalents), [ELEC ENG 2100](#), [ELEC ENG 2101](#), [ELEC ENG 2120](#), [ELEC ENG 2410](#), [ELEC ENG 2411](#), [ELEC ENG 3320](#), [ELEC ENG 3321](#), [ELEC ENG 3430](#), [ELEC ENG 3431](#), [ELEC ENG 3100](#), [ELEC ENG 3101](#), and [ELEC ENG 3600](#), the ELEC ENG power elective ([ELEC ENG 3500](#) and [ELEC ENG 3501](#) or [ELEC ENG 3540](#) and [ELEC ENG 3541](#)), [ELEC ENG 4096](#) and [COMP ENG 2210](#) and [COMP ENG 2211](#). Also, students may not enroll in other courses that use these courses as prerequisites until the minimum grade of "C" is attained.

4

Students may take [PHYSICS 1111](#) and [PHYSICS 1119](#) in place of [PHYSICS 1135](#). Students may take [PHYSICS 2111](#) and [PHYSICS 2119](#) in place of [PHYSICS 2135](#).

5

All electives must be approved by the student's advisor. Students must comply with the general education requirements with respect to selection and depth of study. These requirements are specified in the current catalog.

6

Students who drop a lecture course prior to the last week to drop a class must also drop the corequisite lab.

7

Students must earn a passing grade on the ELEC ENG Advancement Exam I (associated with [ELEC ENG 2100](#)) before they enroll in [ELEC ENG 2120](#) or [ELEC ENG 2410](#) and [ELEC ENG 2411](#).

8

Students must earn a passing grade on the COMP ENG Advancement Exam (associated with [COMP ENG 2210](#)) before they enroll in any course with [COMP ENG 2210](#) and/or [COMP ENG 2211](#) as prerequisites.

9

Students must earn a passing grade on the ELEC ENG Advancement Exam II (associated with [ELEC ENG 2120](#)) before they enroll in [ELEC ENG 3500](#), [ELEC ENG 3540](#), [ELEC ENG 3501](#), [ELEC ENG 3541](#), [ELEC ENG 3320](#), [ELEC ENG 3321](#), [ELEC ENG 3430](#), [ELEC ENG 3431](#), [ELEC ENG 3100](#), [ELEC ENG 3101](#), or [ELEC ENG 3600](#), or other courses with [ELEC ENG 2120](#) as a prerequisite.

10

Students must take [MECH ENG 2340](#), [MECH ENG 2519](#), [MECH ENG 2527](#), [PHYSICS 2305](#), [PHYSICS 2311](#), [PHYSICS 2401](#), [NUC ENG 3103](#), [CHEM 2210](#), [BIO SCI 2213](#), or [BIO SCI 2223](#). The following pairs of course are substitutions: [CIV ENG 2200](#) and [MECH ENG 2350](#) or [ENG MGT 2110](#) and [ENG MGT 3310](#).

11

Students may replace [STAT 3117](#) with [STAT 3115](#) or [STAT 5643](#).

12

Students must take [ENGLISH 3560](#) or [ENGLISH 1160](#). Students may replace [SP&M S 1185](#) with the ROTC sequence of [MIL ARMY 4250](#) and [MIL ARMY 4500](#) or [MIL AIR 4110](#) and [MIL AIR 4120](#).

13

ELEC ENG Electives A, B, and C must be chosen from ELEC ENG 56XX, [ELEC ENG 3500](#), [ELEC ENG 3540](#), [ELEC ENG 3410](#), [ELEC ENG 3250](#), [ELEC ENG 3340](#), [ELEC ENG 3440](#), [ELEC ENG 3120](#), and [COMP ENG 3150](#). Only one ELEC ENG 56XX course may be used.

14

The ELEC ENG Power Elective may be satisfied with [ELEC ENG 3500](#) and [ELEC ENG 3501](#) or [ELEC ENG 3540](#) and [ELEC ENG 3541](#).

15

ELEC ENG Elective D must be a 4XXX-level or above ELEC ENG or COMP ENG course with at least a 3-hour lecture component. [ELEC ENG 4000](#), [ELEC ENG 5000](#), [COMP ENG 4000](#), [COMP ENG 5000](#), [ELEC ENG 4099](#), [COMP ENG 4099](#), [ELEC ENG 4096](#), [COMP ENG 4096](#), [ELEC ENG 4097](#), [COMP ENG 4097](#), [ELEC ENG 5070](#), [COMP ENG 5070](#), ELEC ENG 58XX, and COMP ENG 58XX may not be used for Elective D.

16

ELEC ENG Elective E may be any 3XXX-level or above ELEC ENG or COMP ENG course except [ELEC ENG 3002](#), ELEC ENG 38XX, [ELEC ENG 4096](#), [ELEC ENG 4097](#), [ELEC ENG 5070](#), [COMP ENG 3002](#), COMP ENG 38XX, [COMP ENG 4000](#), [COMP ENG 4096](#), [COMP ENG 4097](#), and [COMP ENG 5070](#).

17

Students are required to take six hours of free elective in consultation with their academic advisors. Credits that do not count toward this requirement are deficiency courses (such as algebra and trigonometry) and extra credits from courses meeting other requirements. Any courses outside of engineering and science must be at least three credit hours. ELEC ENG 28XX, ELEC ENG 38XX, [ELEC ENG 4096](#), [ELEC ENG 4097](#), COMP ENG 28XX, COMP ENG 38XX, [COMP ENG 4096](#) and [COMP ENG 4097](#) may not be used for free electives. No more than one credit hour of [ELEC ENG 3002](#) or [COMP ENG 3002](#) may be applied to the BS degree for free electives.

18

Students that pursue an optional degree emphasis area have restricted options for EI Eng Electives A, D, and E. Students admitted to the accelerated BS/MS program must satisfy EI Eng Electives D and E with 5xxx or 6xxx-level courses and a minimum grade of B.

19

Students must take one of the following courses: [BUS 5980](#), [ECON 4430](#), [ECON 5337](#), [ENG MGT 2310](#), [ENG MGT 3320](#), [ENG MGT 4110](#), [ENG MGT 5514](#), or [PHILOS 3225](#).

20

Both [MATH 1210](#) and [MATH 1211](#) may be taken in place of [MATH 1214](#). A C or better grade is required in both courses.

21

~~Both [MATH 1240](#) and [MATH 1244](#) may be taken in place of [MATH 1244](#). A C or better grade is required in both courses.~~

All Electrical Engineering students are encouraged to take the fundamentals of Engineering Examination prior to graduation. It is the first step toward becoming a registered professional engineer.

An accelerated BS/MS program and a formal emphasis in circuits and electronics, optics and devices, controls and systems, communications and signal processing, power and energy, electromagnetics, or computer engineering are optional.

Emphasis Areas for Electrical Engineering

Circuits and Electronics, Communications and Signal Processing, Computer Engineering, Controls and Systems, Electromagnetics, Optics and Devices, Power and Energy

A declared emphasis area is not required. A student may choose to obtain an Electrical Engineering degree without a formal emphasis or may choose to obtain an Electrical Engineering degree with a declared emphasis in one or more of the emphasis areas of electrical engineering. A major change request is required to add the emphasis area option to the degree program.

For students who seek an Electrical Engineering degree without a formal emphasis, these emphasis areas may guide the choice of their ELEC ENG Electives A, B, C, D, and E as well as their free electives. Students should consult with their advisors on such course selections.

For students who seek an Electrical Engineering degree with a declared emphasis, courses in the declared emphasis area will be applied to ELEC ENG Electives A, D, and E in the degree requirements. For students who choose to have multiple emphasis areas, the additional courses will apply to ELEC ENG Elective B or C and free elective requirements. Students should seek guidance from their advisors on emphasis areas and on courses that are relevant to more than one emphasis area. Students may have an emphasis area or emphasis areas listed on their transcript by completing three three-credit-hour courses in electrical and computer engineering from the designated lists with at least one of the courses being at the 4XXX-level or above. This requirement will be satisfied by completing the relevant ABC Elective course, a 4XXX-level or above course for Elective D, and another 3XXX-level or above course for Elective E from the designated listing. The required ELEC ENG courses [ELEC ENG 3320](#), [ELEC ENG 3430](#), [ELEC ENG 3100](#), and [ELEC ENG 3600](#) and the course used to satisfy the power requirement ([ELEC ENG 3500](#) or [ELEC ENG 3540](#)) may not be used to meet the three course requirement. Transfer courses do not apply to emphasis areas. A co-listed course may count toward both areas. Experimental courses [ELEC ENG 3001](#), [ELEC ENG 4001](#), [ELEC ENG 5001](#), [COMP ENG 3001](#), [COMP ENG 4001](#), or [COMP ENG 5001](#) require departmental approval to apply toward an emphasis area.

Circuits and Electronics		
ELEC ENG 3120	Electronics II	3
ELEC ENG 41XX and ELEC ENG 51XX Courses		
Communications and Signal Processing		
ELEC ENG 3410	Digital Signal Processing	3
ELEC ENG 3440	Digital Communications II	3
ELEC ENG 44XX and ELEC ENG 54XX Courses		
Computer Engineering		
ELEC ENG 3410, COMP ENG 3XXX-level or above Courses (Excluding COMP ENG 3000, COMP ENG 4000, COMP ENG 5000, COMP ENG 3002, COMP ENG 4096, COMP ENG 4097, and COMP ENG 5070) See the COMP ENG degree program for details on COMP ENG areas.		
Controls and Systems		
ELEC ENG 3340	Basic Programmable Logic Controllers	3
ELEC ENG 43XX and ELEC ENG 53XX Courses		
Electromagnetics		
ELEC ENG 46XX and ELEC ENG 56XX Courses		
Optics and Devices		
ELEC ENG 3250	Electronic And Photonic Devices	3
ELEC ENG 42XX and ELEC ENG 52XX Courses		
Power and Energy		
ELEC ENG 3500	Electromechanics	3
ELEC ENG 3540	Power System Design And Analysis	3
ELEC ENG 5150	Photovoltaic Systems Engineering	3
ELEC ENG 5520	Power Electronics	3
ELEC ENG 5521	Power Electronics Laboratory	2
ELEC ENG 45XX and ELEC ENG 55XX Courses		

~~Accelerated BS/MS Program Option for EE and CpE Majors Electrical engineering or computer engineering undergraduates in ECE at Missouri S&T may opt to apply for an accelerated BS/MS ECE program where a student can achieve both degrees faster than if pursuing the degrees separately. The degrees may be BS EE and MS EE, BS CpE and MS CpE, BS EE and MS CpE, or BS CpE and MS EE. The benefits of the program for admitted students are: Undergraduate and graduate courses may be chosen with greater flexibility, Up to nine hours of 5000-level~~

~~or above ECE coursework may apply to both the BS and MS requirements, The classes taken for shared BS/MS credit may be taken at the lower undergraduate tuition rate, The GRE is not required for admission, Other graduate credit courses may be taken anytime after entering the program, and Work on a thesis project may begin before the BS requirements are completed. To be eligible for the accelerated BS/MS ECE program, an EE or CpE undergraduate must be at or beyond the junior level with a minimum of 60 credit hours and must have completed 18 credit hours of EE and/or CpE courses at Missouri S&T with at least a 3.50 GPA in the ECE courses. To be admitted, the student must complete the program application and must have the recommendation of an ECE faculty member who agrees to serve as the graduate thesis advisor. No other MS degree requirements are changed. The MS degree must be for the thesis option. The program may be combined with existing honors research and emphasis area options. Admitted students will have both undergraduate and graduate records in the Registrar's Office. The Accelerated program application must be completed within one semester after the shared-credit courses are completed. Courses taken for shared credit will be identified on the application form and on Graduate Form 1, which is submitted after the student enters the graduate program. The nine hours of shared-credit coursework will be taken as undergraduate credit, and may not be undergraduate research, special problems, or transfer courses (a co-listed course can only apply for these undergraduate requirements if it is under an EE or CpE registration. Note that the choice of EE or CpE registration may affect how a course can apply within an MS program.) An additional nine credit hours of coursework for graduate credit (beyond the shared BS/MS credits) can be taken while in the undergraduate program by applying for dual undergraduate/graduate enrollment. Taking additional courses for graduate credit will require formal application to the graduate program. Acceptance to the MS degree program from the Accelerated program is automatic so long as the student meets ECE graduate student academic performance requirements. To remain in the Accelerated program, the student must maintain good standing within the undergraduate EE or CpE program and must maintain continuous enrollment at Missouri S&T. If the student exits the program before completion of the MS degree requirements or fails to maintain continuous enrollment at Missouri S&T, the shared-credit courses may not apply toward graduate requirements in the event of future readmission. The student is responsible for checking on how dual-enrollment status and graduate coursework will affect scholarships and other financial aid. Once you become a graduate student, you are not eligible for Federal Pell Grants, though are still eligible for Federal Financial Aid and will be eligible for fellowships and teaching/research assistantships. International students should check with international affairs during completion of an accelerated BS/MS to ensure immigration status will be maintained throughout the program.~~

Justification for request

The EE 2410 and 2411 courses replace EE 2200 and 2201 as required courses in the BS Electrical Engineering curriculum. The EE 2410 and 2411 courses address a concern about our graduates not having enough background in general linear system theory. The EE 2200 and 2201 courses are no longer relevant. EE 2200 and 2201 were created a few years ago in response to low scores on parts of the Fundamentals of Engineering (FE) exam, which was required to be taken by all students at that time. The FE exam is no longer required. The material in EE 2200 and 2201 will move back to the EE 3100 and 3101 courses where it was prior to the creation of EE 2200 and 2201. The change was approved by the ECE Faculty in January, 2024.

The description of the Accelerated BS/MS was deleted, as it is discontinued for the Graduate Track Pathway program which was approved by the ECE Faculty in January, 2024.

Note: Footnote 10 was deleted, so references to footnotes 11 to 20 will need to be corrected, if CourseLeaf does not change them.

Supporting Documents

Course Reviewer Comments

jpndf (02/26/24 10:30 am): Renumbered footnotes after footnote 10 was removed.

jpndf (02/29/24 8:45 am): Added credit hours to Elec Eng 2410 & 2411 in plan of study grid.

Program Change Request

Date Submitted: 10/17/23 8:40 am

Viewing: **ENTPRNS-MI : Entrepreneurship Minor**

File: 50.12

Last approved: 06/10/21 4:07 pm

Last edit: 02/23/24 8:38 am

Changes proposed by: cecq8z

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

Start Term

Fall ~~2021~~ 2024

Program Code

ENTPRNS-MI

Department

Business and Information Technology

Title

Entrepreneurship Minor

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

Approval Path

1. 02/21/24 11:18 am
Cassie Elrod
(cassa): Approved for RBUSADMN Chair
2. 02/23/24 8:41 am
Jennifer Pohlsander
(jpnfd): Approved for CCC Secretary
3. 02/23/24 8:58 am
Cecil Eng Huang
Chua (cchua): Approved for Social Sciences DSCC Chair
4. 03/19/24 7:47 am
Jennifer Pohlsander
(jpnfd): Approved for Pending CCC Agenda post

History

1. Aug 5, 2014 by pantaleoa
2. Jun 17, 2015 by pantaleoa
3. Jun 18, 2015 by pantaleoa
4. Jul 14, 2015 by pantaleoa
5. Oct 28, 2020 by Marita Raper (tibbetmsg)
6. Jun 10, 2021 by Cecil Eng Huang Chua (cchua)

Minor in Entrepreneurship

The minor in entrepreneurship requires the following 15 hours of coursework:

BUS 1110	Introduction to Management and Entrepreneurship	3
BUS 5980	Business Models for Entrepreneurship and Innovation	3
MKT 5310	Digital Marketing and Promotions	3
Two courses from the following list:		6
BUS 1414	Course BUS 1414 Not Found	
BUS 5150	Customer Focus and Satisfaction	
BUS 5580	Strategic Management	
IS&T 4641	Digital Commerce and IoT Analytics	
IS&T 4654	Introduction to Web Design and Digital Media Studies	
IS&T 5251	Management and Leadership of Technological Innovation	
IS&T 5335	Fundamentals of Mobile Technology for Business	
IS&T 5886	Prototyping Human-Computer Interactions	
ENG MGT 5511	Technical Entrepreneurship	
ENG MGT 5411	Engineering Design Optimization	

Justification for request

Cleanup of courses. Deleted courses will no longer be offered.

Supporting Documents

Course Reviewer Comments

jpndf (02/23/24 8:38 am): Updated term to Fall 2024.

Program Change Request

Date Submitted: 03/13/24 9:29 am

Viewing: **ENV SCI-BS : Environmental Science BS**

File: 382.36

Last approved: 07/14/23 9:38 am

Last edit: 03/13/24 1:24 pm

Changes proposed by: niyogid

Catalog Pages Using this Program

[Environmental Science](#)

Start Term

Fall ~~2023~~ 2024

Program Code

ENV SCI-BS

Department

Biological Sciences

Title

Environmental Science 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

Approval Path

1. 03/13/24 9:30 am
David Duvernell (duvernellid): Approved for RBIOLSCI Chair
2. 03/13/24 1:24 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/18/24 9:37 am
Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. 03/19/24 7:47 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jan 24, 2022 by Nancy Winterburg (nancym)
2. Jan 24, 2022 by Evie Sherlock (esdk3)
3. Jan 24, 2022 by Evie Sherlock (esdk3)
4. May 2, 2022 by Katie Shannon (shannonk)
5. Feb 17, 2023 by Robin Verble

(verbler)
 6. Jun 6, 2023 by
 Nancy Winterburg
 (nancym)
 7. Jul 14, 2023 by
 Jennifer Pohlsander
 (jpnfd)

Bachelor of Science in Environmental Science

An Environmental Science degree at Missouri S&T commences with a first-year seminar course that is taken concurrently with an introductory environmental science course, creating familiar student cohorts that can support and motivate one another through the program. Throughout their four years in the program, students are trained in five core areas: economics, biology, geology, environmental engineering, and humanities. In addition, they build foundational skills in mathematics, physical science, and communications. As they progress through the program, students increasingly connect ideas from among and within core areas to build their understanding of the integrated multidisciplinary concepts in environmental science. During their junior and senior years, students will be able to customize their degrees by selecting from a diverse array of elective courses within core areas. The degree's flexible upper division elective choices also allow students to specialize and earn minors in core areas if they choose to do so.

Students apply the skills they learn in the classroom in hands-on laboratory and field courses. Students will finish their senior year with a capstone course that will be designed to engage them in professional development, connect them to career opportunities, hone their research and presentation skills through hands-on projects, and foster lifelong collegial relationships with their peers and instructors through intensive group work.

This curriculum benefits from a flexible design that allows students who may be transitioning from other programs on campus to complete the program in a timely manner. In addition, the degree creates opportunities for students to complete multiple minors within the degree, adding focus and strength to the interdisciplinary foundation.

Freshman Year			
First Semester	Credits	Second Semester	Credits
BIO SCI 1173	3	ENGLISH 1160	3
ENV SCI 1110	1	CHEM 1320 or GEOLOGY 3410	3
CHEM 1310	4	BIO SCI 1223	3
CHEM 1100	1	BIO SCI 1229	1
CHEM 1319	1	MATH 1212 , or 1208 , or 1211 , or 1214	4
ECON 1100	3		
ENGLISH 1120	3		
	16		14
Sophomore Year			
First Semester	Credits	Second Semester	Credits
GEOLOGY 1110	3	BIO SCI 2263	3
ECON 4440 or MIN ENG 4523	3	HISTORY 1200 , or 1300 , or 1310	3
ENV ENG 2601 or CIV ENG 2601	3	ENV ENG 2602 or CIV ENG 2602	3
PHYSICS 1145 or 1135	4	GEO ENG 3148	3
POL SCI 1200	3	CIV ENG 5640 or ENV ENG 5640	3
	16		15
Junior Year			
First Semester	Credits	Second Semester	Credits
PHILOS 1130	3	HISTORY 4470 , or 2510 , or 3530 , or 3510	3
GEO ENG 5331	3	GEOLOGY 2611	3

ENV ENG 5642 or CIV ENG 5642	3	PHILOS 4350	3
ECON 4540 or MIN ENG 4524	3	STAT 3425 , or 3115 , or GEO ENG 4115	3-4
BIO SCI 4313	3	BIO SCI 2223	3
	15		15-16
Senior Year			
First Semester	Credits	Second Semester	Credits
GEOLOGY 4310 , or GEO ENG 2536 , or GEO ENG 5144	3	FREE ELECTIVES	3
FREE ELECTIVES	2	ENV SCI 4028	3
UPPER DIVISION ELECTIVES ¹	9	UPPER DIVISION ELECTIVES ¹	9
	14		15
Total Credits: 120-121			

1

See Upper Division Elective Course List

Upper Division Elective Course List

BIO SCI 2242	Cave Biology	2
BIO SCI 2252	Vegetation of the Ozarks	2
BIO SCI 2264	Field Ecology	2
BIO SCI 2353	Zoology	3
BIO SCI 2359	Zoology Laboratory	1
BIO SCI 2372	Issues in Public Health	3
BIO SCI 2383	Plant Biology	3
BIO SCI 2389	Plant Biology Laboratory	1
BIO SCI 3353	Comparative Vertebrate Anatomy	4
BIO SCI 3363	Ecophysiology	3
BIO SCI 4099	Undergraduate Research	1-3
BIO SCI 4316	Introduction to Geomicrobiology	3
BIO SCI 4363	Freshwater Ecology	3
BIO SCI 4369	Freshwater Ecology Laboratory	1
BIO SCI 4383	Toxicology	3
BIO SCI 4423	Introduction to Astrobiology	3
BIO SCI 4563	Global Ecology	3
BIO SCI 4663	Animal Behavior	3
BIO SCI 5423	Advanced Biodiversity	3
BIO SCI 5443	Population and Conservation Genetics	3
CHEM 4710	Principles Of Environmental Monitoring	3
CIV ENG 5605	Environmental Systems Modeling	3
CIV ENG 5630	Remediation of Contaminated Groundwater and Soil	3
CIV ENG 5635	Phytoremediation and Natural Treatment Systems: Science and Design	3
CIV ENG 5650	Public Health Engineering	3
CIV ENG 5660	Introduction To Air Pollution	3
CIV ENG 5662	Air Pollution Control Methods	3
CIV ENG 5665	Indoor Air Pollution	3
ECON 4085	Internship	0-6

ECON 4641	Foundations of Sustainability	3
ECON 4642	Introduction to Global Eco- and Social-preneurship and Innovation	3
ECON 4643	Ethical Problems in a Global Environment	3
ECON 5644	Creativity, Innovation, and Sustainability	3
ENV ENG 3615	Water And Wastewater Engineering	3
ENV ENG 4010	Senior Seminar: Engineering In A Global Society	1
ENV ENG 4099	Undergraduate Research	0-6
ENV ENG 4609	Research in Environmental Engineering	1
ENV ENG 5605	Environmental Systems Modeling	3
ENV ENG 5630	Remediation of Contaminated Groundwater And Soil	3
ENV ENG 5635	Phytoremediation and Natural Treatment Systems: Science and Design	3
ENV ENG 5650	Public Health Engineering	3
ENV ENG 5660	Introduction To Air Pollution	3
ENV ENG 5662	Air Pollution Control Methods	3
ENV ENG 5665	Indoor Air Pollution	3
GEO ENG 4099	Undergraduate Research	0-6
GEO ENG 4115	Statistical Methods in Geology and Engineering	3
GEO ENG 4276	Environmental Aspects Of Mining	3
GEO ENG 5085	Internship	0-15
GEO ENG 5146	Applications Of Geographic Information Systems	3
GEO ENG 5174	Geological Engineering Field Methods	3
GEO ENG 5233	Risk Assessment In Environmental Studies	3
GEO ENG 5239	Groundwater Remediation	3
GEO ENG 5276	Advanced Environmental Aspects Of Mining	3
GEO ENG 5320	Groundwater Modeling	3
GEO ENG 5332	Fundamentals of Groundwater Hydrology	3
GEO ENG 5556	Renewable Energy Systems	3
GEOLOGY 2096	Field Geology	3
GEOLOGY 2731	Introduction to Planetary Science	3
GEOLOGY 4085	Internship	3
GEOLOGY 4099	Undergraduate Research	0-6
GEOLOGY 4310	Remote Sensing Technology	3
GEOLOGY 4411	Hydrogeology	3
GEOLOGY 4421	Radioactive Waste Management And Remediation	3
GEOLOGY 4431	Methods Of Karst Hydrogeology	3
GEOLOGY 4711	Paleoclimatology and Paleoecology	3
GEOLOGY 4721	Meteorology and Climatology	3
GEOLOGY 4841	Geological Field Studies	3
GEOLOGY 5681	Lidar Principles and Application	3
GEOLOGY 5741	Micropaleontology	3
MIN ENG 5742	Environmental Aspects of Mining	3
POL SCI 3300	Principles Of Public Policy	3
POL SCI 4085	Political Science Internship	0-6

Secondary Education Emphasis Area

You may earn a BS degree in environmental science 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 anywhere in the state. Students interested in this emphasis area should consult with the advisor for environmental science.

In order to successfully complete the emphasis area, students must attain at least a 3.0 GPA average for all environmental science courses and professional education courses required by the Missouri Department of Elementary and Secondary Education for teacher certification.

Students must also meet all requirements listed under the teacher education website including passing the state-required assessments.

A degree in the emphasis area requires a minimum of 128 credit hours. The required courses are provided below.

Humanities: 15 semester hours		
ENGLISH 1120	Exposition And Argumentation	3
ENGLISH 1160	Writing And Research	3
or ENGLISH 3560	Technical Writing	
ENGLISH 3170	Teaching And Supervising Reading and Writing	3
PHILOS 1130	How Should I Live? An Introduction to Ethics	3
PHILOS 4350	Environmental Ethics	3
Social Sciences: 18 semester hours		
HISTORY 1310	American History Since 1877	3
PSYCH 1101	General Psychology	3
PSYCH 3310	Developmental Psychology	3
ECON 1100	Principles Of Microeconomics	3
ECON 4440	Environmental And Natural Resource Economics	3
HISTORY 2510	History of Technology	3
or HISTORY 3510	Twentieth Century Technology And Society	
or HISTORY 3530	History of Science	
Mathematics/Physical Science: 12 semester hours		
MATH 1208	Calculus With Analytic Geometry I	4-9
or MATH 1214	Calculus I	
or MATH 1210 & MATH 1211	Calculus I-A and Calculus I-B	
PHYSICS 1505 & PHYSICS 1509	Introductory Astronomy and Astronomy Laboratory	4
PHYSICS 1145	College Physics I	4
or PHYSICS 1135	Engineering Physics I	
Statistics: 3 semester hours		
STAT 3425	Introduction to Biostatistics	3-4
or STAT 3113	Applied Engineering Statistics	
or STAT 3115	Engineering Statistics	
Biological Sciences: 13 semester hours		
BIO SCI 1223 & BIO SCI 1229	Biodiversity and Biodiversity Lab	4
BIO SCI 1173	Introduction to Environmental Sciences	3

BIO SCI 2223	General Genetics	3
BIO SCI 2263	Ecology	3
Chemistry: 9 semester hours		
CHEM 1100	Introduction To Laboratory Safety & Hazardous Materials	1
CHEM 1310	General Chemistry I	4
CHEM 1319	General Chemistry Laboratory	1
CHEM 1320	General Chemistry II	3
Civil, Architectural and Environmental Engineering: 9 semester hours		
ENV ENG 2601	Fundamentals Of Environmental Engineering and Science	3
ENV ENG 2602	Biological Fundamentals Of Environmental Engineering	3
ENV ENG 5640	Environmental Law And Regulations	3
or ENV ENG 5642	Sustainability, Population, Energy, Water, and Materials	
Environmental Science: 1 semester hour		
ENV SCI 1110	Environmental Science Freshman Seminar	1
Geological Sciences/Geological and Petroleum Engineering: 12 semester hours		
GEO ENG 2536	Basic Weather	3
GEOLOGY 1110	Physical And Environmental Geology	3
GEOLOGY 2611	Physical Mineralogy And Petrology	3
GEO ENG 3148	Fundamentals Of Geographic Information Systems	3
Education: 36 semester hours		
EDUC 1040	Perspectives In Education	2
EDUC 1174	School Organization and Administration For Teachers	2
EDUC 3216	Instructional Literacy in the Content Area	3
EDUC 3280	Instructional Strategies in the Content Area	3
EDUC 4298	Student Teaching Seminar	1
PSYCH 2300	Educational Psychology	3
or EDUC 2102	Educational Psychology	
EDUC 3340	Assessment of Student Learning	3
PSYCH 4310	Psychology Of The Exceptional Child	3
or EDUC 2310	Education Of The Exceptional Child	
EDUC 1104	Teacher Field Experience I	1
EDUC 1164	Teacher Field Experience II	2
EDUC 3298	Teacher Field Experience III	1
EDUC 4299	Student Teaching	12

Justification for request

CHEM ENG 4540 needs to be removed from schedule (Junior Year, fall semester) - class is noted with RED outline above.

This class on energy economics is no longer in the catalog for the CHEM ENG department. It was a co-listed class, so students can take the class through ECON or MIN ENG as outlined in schedule. Thus, there is no change to the curriculum.

Supporting Documents

Course Reviewer Comments

jpofd (03/13/24 1:16 pm): CHEM ENG 4540 removed from schedule (Junior Year, fall semester).

jpofd (03/13/24 1:24 pm): Updated term to Fall 2024.

Program Change Request

Date Submitted: 10/17/23 8:43 am

Viewing: **FIN TCH-MI : Minor in Financial Technology, Analytics and Transformation**

File: 256.22

Last approved: 08/19/21 11:08 am

Last edit: 02/22/24 2:09 pm

Changes proposed by: cecq8z

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

Start Term

Fall ~~2021~~ 2024

Program Code

FIN TCH-MI

Department

Business and Information Technology

Title

Minor in Financial Technology, Analytics and Transformation

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

Approval Path

1. 02/21/24 11:18 am
Cassie Elrod
(cassa): Approved for RBUSADMN Chair
2. 02/22/24 3:00 pm
Jennifer Pohlsander
(jpnfd): Approved for CCC Secretary
3. 02/22/24 3:23 pm
Cecil Eng Huang
Chua (cchua):
Approved for Social Sciences DSCC Chair
4. 03/19/24 7:47 am
Jennifer Pohlsander
(jpnfd): Approved for Pending CCC Agenda post

History

1. Mar 21, 2018 by barryf
2. Apr 19, 2018 by ershenb
3. Apr 19, 2019 by cladmin-bdietzler
4. Jun 10, 2021 by Cecil Eng Huang Chua (cchua)
5. Aug 19, 2021 by Crystal Wilson (wilsoncry)

Minor in Financial Technology, Analytics and Transformation

The Minor requires 15 credit hours, as follows:

Required Courses:	6
FINANCE 2150	Corporate Finance I
FINANCE 5310	Financial Technology and Analytics
One or more of the following courses must be taken:	3
IS&T 3420	Introduction to Data Science and Management
BUS 5230	Financial Statement Analysis
One or more of the following courses must be taken:	6
IS&T 4641	Digital Commerce and IoT Analytics
IS&T 5780	Human and Organizational Factors in Cybersecurity
IS&T 5520	Data Science and Machine Learning with Python
ERP 5210	Performance Dashboard, Scorecard and Data Visualization
ERP 5410	Use of Business Intelligence
FINANCE 5160	Corporate Finance II
FINANCE 5260	Investments I

Justification for request

Cleanup of programs to remove courses no longer offered.

Supporting Documents

Course Reviewer Comments

jpofd (02/22/24 2:09 pm): Updated term to Fall 2024.

Program Change Request

Date Submitted: 02/14/24 8:03 am

Viewing: **FINANCE-CT : Finance CT**

File: 289.2

Last approved: 06/12/19 2:24 pm

Last edit: 02/23/24 9:19 am

Changes proposed by: cecq8z

Catalog Pages Using this Program

[Business Administration](#)

Start Term

Fall 2024 ~~2019~~

Program Code

FINANCE-CT

Department

Business and Information Technology

Title

Finance 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

Approval Path

1. 02/21/24 11:00 am
Cassie Elrod (cassa): Approved for RBUSADMN Chair
2. 02/23/24 1:02 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 02/23/24 4:13 pm
Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 03/19/24 7:47 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jun 12, 2019 by ershenb

Finance

This certificate provides in-depth exposure to finance, including managerial and corporate finance, as well as investments and financial statement analysis and modeling. Skills will be enhanced in financial theory, financial markets, and decision-making in investments, with career options as budget analysts/financial analysts, risk management specialists, capital advisors, and investment underwriters, among others.

A student admitted to this graduate certificate must complete four courses:

BUS 6827	Managerial Finance
Three courses from the following list:	
FINANCE 5160	Corporate Finance II
FINANCE 5260	Investments I
BUS 5230	Financial Statement Analysis
FINANCE 5310	Financial Technology and Analytics

Justification for request

Removal of courses from course catalog

Supporting Documents

[Revised-Finance-BIT-approved.pdf](#)

Course Reviewer Comments

jpnfd (02/23/24 9:19 am): Updated term to Fall 2024.

Program Change Request

A deleted record cannot be edited

Program Deactivation Proposal

Date Submitted: 03/05/24 2:20 pm

Viewing: **HCI-CT : Human Computer Interaction CT**

File: 300.10

Last approved: 06/10/21 4:10 pm

Last edit: 03/13/24 11:08 am

Changes proposed by: cecq8z

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

Start Term

Fall ~~2021~~ 2024

Program Code

HCI-CT

Department

Business and Information Technology

Title

Human Computer Interaction 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

Approval Path

1. 03/12/24 4:02 pm
Cassie Elrod (cassa): Approved for RINFSCTE Chair
2. 03/13/24 11:12 am
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/13/24 4:13 pm
Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 03/19/24 7:47 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jun 12, 2019 by ershenb
2. Jun 10, 2021 by Cecil Eng Huang Chua (cchua)

There is a growing demand within industry for workers with expertise in human-computer interaction (HCI), who generally hold titles such as interface designer; usability researcher analyst; usability engineer; user experience specialist; or information architect. HCI specialists bridge the gap in organizations between groups who build the technologies and groups who use the technologies. The qualifications for these positions generally fall into the following categories:

- Knowledge of human-computer interaction principles
- Skills in collecting user requirements
- Skills in developing prototypes, both low fidelity (e.g., paper) and high fidelity (e.g., html mock-up)
- Skills in evaluation of the impact of technologies on humans

A student admitted to this graduate certificate must complete four courses:

Required core courses:	
IS&T 5885	Human-Computer Interaction and User Experience
IS&T 5886	Prototyping Human-Computer Interactions
IS&T 5887	Human-Computer Interaction Evaluation
One course from the following:	
IS&T 5680	Digital Media Development and Interactive Design
IS&T 6887	Research Methods in Business and IS&T
IS&T 5168	Law and Ethics in E-Commerce

Justification for request

Low enrollment

Supporting Documents

Course Reviewer Comments

jpnfd (03/13/24 11:08 am): Deletion of certificate was approved by MDHEWD on 3/1/2024. Email received from the department on 3/5/24 with approval attached.

Program Change Request

Date Submitted: 03/11/24 11:16 am

Viewing: **HIST-BA : History BA**

File: 157.50

Last approved: 02/23/24 10:50 am

Last edit: 03/11/24 11:16 am

Changes proposed by: sfogg

Catalog Pages Using this Program

[History](#)

Start Term

Fall 2024

Program Code

HIST-BA

Department

History and Political Science

Title

History BA

Program Requirements and Description

In Workflow

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

Approval Path

1. 03/11/24 11:19 am
Shannon Fogg (sfogg): Approved for RHISTORY Chair
2. 03/13/24 11:28 am
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/13/24 11:33 am
Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
4. 03/19/24 7:47 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

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

- Petra Dewitt
(dewittp)
- 7. May 5, 2021 by
Petra Dewitt
(dewittp)
- 8. Nov 15, 2021 by
Petra Dewitt
(dewittp)
- 9. Oct 31, 2023 by
Petra Dewitt
(dewittp)
- 10. Feb 23, 2024 by
Shannon Fogg
(sfogg)

Bachelor of Arts History

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

HISTORY 1790	Introduction to History	1
HISTORY 1300	American History To 1877	3
HISTORY 1310	American History Since 1877	3
HISTORY 4790	Historiography	3
HISTORY 2791	Historical Research Methods	3
2 American History Electives		6
2 European History Electives		6
2 History Electives		6
3 hours of Electives must come from a non-western, marginalized or minority focused course, such as		
HISTORY 2430	History of the American Pacific	
HISTORY 3241	World War I A Global Perspective	
HISTORY 3600	World History	
HISTORY 3625	Slavery and Abolition in Atlantic World	
HISTORY 3660	Modern East Asia	
HISTORY 3665	History of Japan	
HISTORY 4245	Nazi Germany and the Holocaust	
HISTORY 4246	War and Society in Twentieth-Century Europe	
HISTORY 4760	Course HISTORY 4760 Not Found (or)	
POL SCI 4760	Course POL SCI 4760 Not Found	
Total Credits		31

Note: History majors are also required to complete [HISTORY 1100](#) and [HISTORY 1200](#) as part of the general education requirements for the B.A. In addition, 9 hours of the 31 major hours must be taken at the 3000 or 4000 level.

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

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

Note: Entering students will normally take [ENGLISH 1120](#) either semester of the first year.

Secondary Education Emphasis Area

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

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

History students must complete 122 credit hours, including requirements for teacher education listed in this catalog. A minimum grade of "C" is required by the department in all history and political science courses counted towards this degree. Students must take the following courses:

Communication Skills: 6 hours		
ENGLISH 1120	Exposition And Argumentation	3
ENGLISH 1160	Writing And Research	3
Humanities: 12 hours with at least one course from the first three areas		
Art or Music or Theater Appreciation		
Philosophy		
Literature		
Foreign Language		
ETYM 4306	Introduction To Etymology	3
Social Sciences: 18 hours		
POL SCI 1200	American Government	3
Political Science Elective <small>Must be 2XXX or above</small>		3
ECON 1100	Principles Of Microeconomics	3
or ECON 1200	Principles Of Macroeconomics	
PSYCH 1101	General Psychology	3
PSYCH 4600	Social Psychology	3
HISTORY 2110	World Regional Geography	3
Natural Sciences: 7 hours = 2 courses and 1 lab		
One course in Physics or Chemistry or Geology and one course in Biology		
One laboratory in any of the above science courses		
Mathematics: 3 hours		
MATH 1120	College Algebra (or higher)	3-5
or MATH 1103	Fundamentals Of Algebra	
or MATH 1140	College Algebra	
Clinical Experience: 16 hours		
EDUC 1104	Teacher Field Experience I	1
EDUC 1164	Teacher Field Experience II	2
EDUC 3298	Teacher Field Experience III	1
EDUC 4299	Student Teaching	12
Professional Requirements: 26 hours		
EDUC 1040	Perspectives In Education	2
EDUC 1174	School Organization and Administration For Teachers	2
EDUC 2310	Education Of The Exceptional Child	3

EDUC 3216	Instructional Literacy in the Content Area	3
EDUC 3280	Instructional Strategies in the Content Area	3
EDUC 3340	Assessment of Student Learning	3
EDUC 4298	Student Teaching Seminar	1
ENGLISH 3170	Teaching And Supervising Reading and Writing	3
PSYCH 2300/EDUC 2102	Educational Psychology	3
PSYCH 3310	Developmental Psychology	3
History Requirements: 34 hours		
HISTORY 1100	Early Western Civilization	3
HISTORY 1200	Modern Western Civilization	3
HISTORY 1300	American History To 1877	3
HISTORY 1310	American History Since 1877	3
HISTORY 1790	Introduction to History	1
HISTORY 2791	Historical Research Methods	3
HISTORY 4790	Historiography	3
American History Electives		6
European History Electives		6
History Electives		3

National Security Emphasis Area (18 hours)

It is not required that students obtain an emphasis area in their major.

The following identifies courses from which a student may opt to develop a National Security Emphasis Area.

In addition to General Education Requirements for the BA and the core History Requirements (19 hours), students must select in consultation with their advisor at least 18 hours from the below with a minimum of 9 hours in history courses. POL SCI 4500 is strongly recommended.

Students may, but do not have to, focus their selection on American Security or Global Security.

At least 2 courses (6 hours) (or for a focus on American Security up to 12 hours) with grades of C or better from the following

HISTORY 3325	Revolutionary America, 1754-1789	3
HISTORY 3345	Civil War And Reconstruction	3
HISTORY 3440	Grunts: 20th Century Americans In Combat	3
HISTORY 3441	The United States In World War II	3
HISTORY 3442	The United States in Vietnam	3
HISTORY 3443	The American Military Experience	3
HISTORY 3760	The American Presidency (or)	3
POL SCI 3760	The American Presidency	
HISTORY 3761	U.S. Diplomatic History to World War II (or)	3
POL SCI 3761	U.S. Diplomatic History to World War II	
HISTORY 3762	American Foreign Policy Since 1945 (or)	3
POL SCI 3762	American Foreign Policy Since 1945	
POL SCI 3300	Principles Of Public Policy	3
POL SCI 3310	Public Policy Analysis	3

And at least 2 courses (6 hours) (or for a focus on Global Security up to 12 hours) with grades of C or better from the following

HISTORY 2224	Making Of Modern Russia	<u>3</u>
HISTORY 3241	World War I A Global Perspective	<u>3</u>
HISTORY 4760	Course HISTORY 4760 Not Found (or)	
POL SCI 4760	Course POL SCI 4760 Not Found	
HISTORY 3235	Foundations Of Contemporary Europe 1815-1914	<u>3</u>
HISTORY 3240	Contemporary Europe	<u>3</u>
HISTORY 3600	World History	<u>3</u>
HISTORY 4245	Nazi Germany and the Holocaust	<u>3</u>
HISTORY 4246	War and Society in Twentieth-Century Europe	<u>3</u>
POL SCI 4500	Geopolitics and International Security	<u>3</u>
RUSSIAN 4360	Russian Civilization	<u>3</u>

Students may also select from the following enough electives to reach 18 credit hours

BIO SCI 2372	Issues in Public Health	<u>3</u>
BUS 4675	International Business	<u>3</u>
GEO ENG 3148	Fundamentals Of Geographic Information Systems (or)	<u>3</u>
GEOLOGY 3811	Fundamentals Of Geographic Information Systems	
HISTORY 3530	History of Science	<u>3</u>
IS&T 1314	Exposure to Cybersecurity Concepts	<u>3</u>
IS&T 3333	Data Networks and Information Security	<u>3</u>
MIL AIR 4110	National Security, Leadership Responsibilities & Commissioning Preparation I	<u>2.5</u>
MIL AIR 4120	National Security, Leadership Responsibilities & Commissioning Preparation II	<u>2.5</u>
MIL ARMY 3500	Leadership in Changing Environments	<u>3</u>
MIL ARMY 4250	Developing Adaptive Leaders	<u>3</u>
MIL ARMY 4500	Leadership in a Complex World	<u>3</u>
PHYSICS 1605	Environmental Physics I	<u>3</u>
PSYCH 4610	Psychology of Leadership in Organizations	<u>3</u>
PSYCH 4992	Cross-Cultural Psychology	<u>3</u>

Additional courses from the above may be used to reach 120 credit hours.

Justification for request

Offer history majors (or those transitioning from an engineering or science degree to a history degree) the opportunity to graduate with a degree, or emphasis area, if they wish to be employed in the military or government, or a business closely associated with military or government.

Supporting Documents

[MDHE Approval Letter S&T FEB 2024.pdf](#)

[PC Form-History BA-Emphasis Addition.pdf](#)

Course Reviewer Comments

Program Change Request

Date Submitted: 03/11/24 11:18 am

Viewing: **HISTORY-BS : Bachelor of Science in History**

File: 242.32

Last approved: 10/31/23 8:57 am

Last edit: 03/13/24 11:44 am

Changes proposed by: sfogg

Catalog Pages Using this Program

[History](#)

Start Term

Fall 2024

Program Code

HISTORY-BS

Department

History and Political Science

Title

Bachelor of Science in History

Program Requirements and Description

In Workflow

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

Approval Path

1. 03/11/24 11:19 am
Shannon Fogg (sfogg): Approved for RHISTORY Chair
2. 03/13/24 11:45 am
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/13/24 11:52 am
Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
4. 03/19/24 7:48 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jun 27, 2016 by
Petra Dewitt (dewittp)
2. Jul 27, 2016 by
Crystal Wilson (wilsoncry)
3. Dec 1, 2016 by
Petra Dewitt (dewittp)
4. Jan 30, 2020 by
Petra Dewitt (dewittp)
5. Nov 15, 2021 by
Petra Dewitt

(dewittp)
 6. May 10, 2022 by
 Marita Raper
 (tibbettsmg)
 7. May 18, 2023 by
 Jennifer Pohlsander
 (jpnfd)
 8. Oct 31, 2023 by
 Petra Dewitt
 (dewittp)

Bachelor of Science History

Students must take a minimum of 120 hours for a Bachelor of Science degree in history, and obtain a grade point average of 2.0. These requirements for the B.S. are in addition to credit received for basic ROTC.

The B.S. in history requires the following:

1. English composition (6 hours)

ENGLISH 1120	Exposition And Argumentation ¹	3
One other writing intensive course outside their major, such as		3
ENGLISH 1160	Writing And Research	
ENGLISH 1170	Creative Writing	
ENGLISH 3560	Technical Writing	

2. Math and Sciences (18 hours).

The general requirements for a B.S. call for at least 18 hours in biological, physical (chemistry, geology, physics), and mathematical (mathematics, statistics, computer science, and information science and technology) sciences.

1 Biological Science course		
1 Physical Science course ²		
1 Laboratory course		
1 Math course ³		
In addition to these requirements, students may also count toward 18 hours		
STAT 1115	Statistics For The Social Sciences I	
Up to 3 hours from		
HISTORY 2510	History of Technology	
HISTORY 3510	Twentieth Century Technology And Society	
HISTORY 3530	History of Science	
HISTORY 3534	History of Medieval and Early Modern Science	
3 hours of Psych courses not listed elsewhere, such as		
PSYCH 2200	Research Methods	

3. Humanities (12 hours).

Students must take 12 hours in humanities other than history with at least		
1 Literature course		
1 Philosophy course		

1 Fine Arts course ⁴

Students may take language course or humanities course other than history to meet 12 hours requirement.

4. Social Sciences (12 hours).

POL SCI 1200	American Government	3
At least one course in two from three areas:		
Economics		
Political Science		
Psychology		
Students may transfer up to 3 hours of Sociology to meet 12 hours requirement ⁵		

5. History (37 hours)

Students must take 37 hours in required history courses, including ⁷		
HISTORY 1790	Introduction to History	1
HISTORY 1100	Early Western Civilization	3
HISTORY 1200	Modern Western Civilization	3
HISTORY 1300	American History To 1877	3
HISTORY 1310	American History Since 1877	3
HISTORY 2791	Historical Research Methods	3
HISTORY 4790	Historiography	3
At least 18 hours of Electives, consisting of		
2 American History Electives		6
2 European History Electives		6
1 Elective must come from a non-western, marginalized or minority focused course, such as		3
HISTORY 2430	History of the American Pacific	
HISTORY 3241	World War I A Global Perspective	
HISTORY 3600	World History	
HISTORY 3625	Slavery and Abolition in Atlantic World	
HISTORY 3241	World War I A Global Perspective	
HISTORY 3600	World History	
HISTORY 3625	Slavery and Abolition in Atlantic World	
HISTORY 3660	Modern East Asia	
HISTORY 3665	History of Japan	
HISTORY 4245	Nazi Germany and the Holocaust	
HISTORY 4246	War and Society in Twentieth-Century Europe	
HISTORY 4760	Course HISTORY 4760 Not Found (or)	
POL SCI 4760	Course POL SCI 4760 Not Found	

6. Electives Credit. Each student will elect sufficient additional courses to complete a minimum of 120 credit hours, which may include up to 12 hours in engineering courses at the discretion of the major adviser. At least 9 hours of these electives must be at the 3000 or above level, although substitutions may be permitted at the discretion of the major adviser. All electives must accumulate to at least a 2.0 grade point average.

National Security Emphasis Area (18 hours)

It is not required that students obtain an emphasis area in their major.

The following identifies courses from which a student may opt to develop a National Security Emphasis Area.

In addition to General Education Requirements for the BS and the core History Requirements (19 hours), students must select in consultation with their advisor at least 18 hours from the below with a minimum of 9 hours in history courses. POL SCI 4500 is strongly recommended.

Students may, but do not have to, focus their selection on American Security or Global Security.

At least 2 courses (6 hours) (or for a focus on American Security up to 12 hours) with grades of C or better from the following

<u>HISTORY 3325</u>	<u>Revolutionary America, 1754-1789</u>	<u>3</u>
<u>HISTORY 3345</u>	<u>Civil War And Reconstruction</u>	<u>3</u>
<u>HISTORY 3440</u>	<u>Grunts: 20th Century Americans In Combat</u>	<u>3</u>
<u>HISTORY 3441</u>	<u>The United States In World War II</u>	<u>3</u>
<u>HISTORY 3442</u>	<u>The United States in Vietnam</u>	<u>3</u>
<u>HISTORY 3443</u>	<u>The American Military Experience</u>	<u>3</u>
<u>HISTORY 3760</u>	<u>The American Presidency (or)</u>	<u>3</u>
<u>POL SCI 3760</u>	<u>The American Presidency</u>	
<u>HISTORY 3761</u>	<u>U.S. Diplomatic History to World War II (or)</u>	<u>3</u>
<u>POL SCI 3761</u>	<u>U.S. Diplomatic History to World War II</u>	
<u>HISTORY 3762</u>	<u>American Foreign Policy Since 1945 (or)</u>	<u>3</u>
<u>POL SCI 3762</u>	<u>American Foreign Policy Since 1945</u>	
<u>POL SCI 3300</u>	<u>Principles Of Public Policy</u>	<u>3</u>
<u>POL SCI 3310</u>	<u>Public Policy Analysis</u>	<u>3</u>

And at least 2 courses (6 hours) (or for a focus on Global Security up to 12 hours) with grades of C or better from the following

<u>HISTORY 2224</u>	<u>Making Of Modern Russia</u>	<u>3</u>
<u>HISTORY 3241</u>	<u>World War I A Global Perspective</u>	<u>3</u>
<u>HISTORY 4760</u>	<u>Course HISTORY 4760 Not Found (or)</u>	
<u>POL SCI 4760</u>	<u>Course POL SCI 4760 Not Found</u>	
<u>HISTORY 3235</u>	<u>Foundations Of Contemporary Europe 1815-1914</u>	<u>3</u>
<u>HISTORY 3240</u>	<u>Contemporary Europe</u>	<u>3</u>
<u>HISTORY 3600</u>	<u>World History</u>	<u>3</u>
<u>HISTORY 4245</u>	<u>Nazi Germany and the Holocaust</u>	<u>3</u>
<u>HISTORY 4246</u>	<u>War and Society in Twentieth-Century Europe</u>	<u>3</u>
<u>POL SCI 4500</u>	<u>Geopolitics and International Security</u>	<u>3</u>
<u>RUSSIAN 4360</u>	<u>Russian Civilization</u>	<u>3</u>

Students may also select from the following enough electives to reach 18 hours.

<u>BIO SCI 2372</u>	<u>Issues in Public Health</u>	<u>3</u>
<u>BUS 4675</u>	<u>International Business</u>	<u>3</u>
<u>GEO ENG 3148</u>	<u>Fundamentals Of Geographic Information Systems (or)</u>	<u>3</u>
<u>GEOLOGY 3811</u>	<u>Fundamentals Of Geographic Information Systems</u>	<u>3</u>
<u>HISTORY 3530</u>	<u>History of Science</u>	<u>3</u>
<u>IS&T 1314</u>	<u>Exposure to Cybersecurity Concepts</u>	<u>3</u>
<u>IS&T 3333</u>	<u>Data Networks and Information Security</u>	<u>3</u>
<u>MIL AIR 4110</u>	<u>National Security, Leadership Responsibilities & Commissioning Preparation I</u>	<u>2.5</u>
<u>MIL AIR 4120</u>	<u>National Security, Leadership Responsibilities & Commissioning Preparation II</u>	<u>2.5</u>
<u>MIL ARMY 3500</u>	<u>Leadership in Changing Environments</u>	<u>3</u>

<u>MIL ARMY 4250</u>	<u>Developing Adaptive Leaders</u>	<u>3</u>
<u>MIL ARMY 4500</u>	<u>Leadership in a Complex World</u>	<u>3</u>
<u>PHYSICS 1605</u>	<u>Environmental Physics I</u>	<u>3</u>
<u>PSYCH 4610</u>	<u>Psychology of Leadership in Organizations</u>	<u>3</u>
<u>PSYCH 4992</u>	<u>Cross-Cultural Psychology</u>	<u>3</u>

[Additional courses from the above may be used to reach 120 credit hours.](#)

1

Entering students will normally take English 1120 within their first year of study.

2

Chemistry, Physics, Geology

3

College Algebra or higher

4

Art, Music, or Theater Appreciation

5

With major advisor approval

6

9 of these 18 hours of history electives must be at or above the 3000 level.

7

The student must earn a grade of C or better in these required courses.

Justification for request

The emphasis area offers history majors (or those transitioning from an engineering or science degree to a history degree) the opportunity to graduate with a degree, or emphasis area, if they wish to be employed in the military or government, or a business closely associated with military or government.

Supporting Documents

[MDHE Approval Letter S&T FEB 2024.pdf](#)

[PC Form-History BS-Emphasis Addition.pdf](#)

Course Reviewer Comments

jpnfd (03/13/24 11:44 am): Corrected typo.

Program Change Request

Date Submitted: 10/17/23 12:03 pm

Viewing: **MGMT-MI : Management Minor**

File: 138.17

Last approved: 06/10/21 4:08 pm

Last edit: 02/22/24 2:56 pm

Changes proposed by: cecq8z

Catalog Pages Using this Program

[Business and Management Systems](#)

[Information Science and Technology](#)

Start Term

Fall ~~2021~~ 2024

Program Code

MGMT-MI

Department

Business and Information Technology

Title

Management Minor

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

Approval Path

1. 10/17/23 11:50 am
Cassie Elrod
(cassa): Rollback to Initiator
2. 02/21/24 11:18 am
Cassie Elrod
(cassa): Approved for RBUSADMN Chair
3. 02/22/24 2:58 pm
Jennifer Pohlsander
(jpnfd): Approved for CCC Secretary
4. 02/22/24 3:23 pm
Cecil Eng Huang
Chua (cchua): Approved for Social Sciences DSCC Chair
5. 03/19/24 7:48 am
Jennifer Pohlsander
(jpnfd): Approved for Pending CCC Agenda post

History

1. Aug 5, 2014 by pantaleoa
2. Jun 17, 2015 by pantaleoa
3. Jun 17, 2015 by pantaleoa
4. Jul 14, 2015 by pantaleoa
5. Jun 27, 2016 by barryf

Minor in Management

The minor in management requires the following 15 hours of coursework:

BUS 1110	Introduction to Management and Entrepreneurship	3
BUS 1414	Course BUS 1414 Not Found	
Three courses from the following list:		9
Four courses from the following list:		12
BUS 2910	Business Law	
BUS 3415	Introduction to Teambuilding and Leadership	
BUS 5111	Business Negotiations	
BUS 5150	Customer Focus and Satisfaction	
BUS 5360	Business Operations	
BUS 5470	Human Resource Management	
BUS 5580	Strategic Management	
BUS 5910	Privacy and Information Security	
IS&T 4261	Information Systems Project Management	
ENG MGT 3320	Introduction to Project Management	

Justification for request

Streamlining minor to remove courses not taught. We have asked for 5470 to be hidden. This is an important course and so should remain on the books, but there is no one to teach it.

Supporting Documents

Course Reviewer Comments

cassa (10/17/23 11:50 am): Rollback: Please leave BUS 5470 intact for now.

jpndf (02/21/24 3:23 pm): Updated term to Fall 2024.

jpndf (02/22/24 2:56 pm): Updated course list from three of the following courses to four and adjusted from 9 to 12 credit hours per dept email 2/22/24.

Program Change Request

Date Submitted: 02/14/24 8:16 am

Viewing: **MGTLEAD-CT : Management and Leadership**

File: 291.15

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

Last edit: 02/29/24 9:16 am

Changes proposed by: cecq8z

Catalog Pages Using this Program

[Business Administration](#)

Start Term

Fall 2021

Program Code

MGTLEAD-CT

Department

Business and Information Technology

Title

Management and Leadership

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

Approval Path

1. 02/21/24 10:48 am
Cassie Elrod (cassa): Approved for RINFSCTE Chair
2. 02/29/24 9:17 am
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 02/29/24 9:42 am
Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 03/19/24 7:48 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jun 12, 2019 by ershenb
2. Jul 1, 2020 by Cecil Eng Huang Chua (cchua)
3. Mar 4, 2021 by Cecil Eng Huang Chua (cchua)

This certificate is designed to prepare students to be the leaders of the future, by enabling them to manage through the use of technology. Understanding technology is becoming ever more critical in business as a tool used by efficient and effective managers. These leaders not only understand the managerial process and how to inspire others, but also know how to harness technology to expedite the process. The certificate incorporates management theories, technological savvy, and leadership skills to create a student who is ready for the challenges of a fast paced managerial position.

A student admitted to this graduate certificate must complete four courses:

Choose four courses from the following list:	
BUS 6121	Leadership
Elective courses (choose three):	
BUS 5580	Strategic Management
BUS 5111	Business Negotiations
BUS 5470	Human Resource Management
BUS 6425	Supply Chain and Project Management
BUS 6723	Artificial Intelligence, Robotics, and Information Systems Management
IS&T 6261	Advanced Information Systems Project Management
IS&T 5251	Management and Leadership of Technological Innovation
IS&T 5168	Law and Ethics in E-Commerce
MKT 5150	Customer Focus and Satisfaction
IS&T 6723	Artificial Intelligence, Robotics, and Digital Transformation
BUS 5150	Customer Focus and Satisfaction
ENG MGT 5320	Project Management

Justification for request

Removal of courses from catalog

Supporting Documents

~~[Grad CT Revised.pdf](#)~~

[Revised-Management and Leadership-BIT-approved.pdf](#)

Course Reviewer Comments

jpnfd (02/29/24 9:16 am): Per email from Dr. Raper 2/29/24, this is considered a minor change and will follow the Graduate Certificate Approval process for minor changes.

Program Change Request

Date Submitted: 03/01/24 11:28 am

Viewing: **MIL SC-MI : Adaptive Leadership Minor**

File: 93.17

Last approved: 02/23/24 10:50 am

Last edit: 03/04/24 12:45 pm

Changes proposed by: eckertr

Catalog Pages Using this Program

[Military Science](#)

Start Term

Fall 2024

Program Code

MIL SC-MI

Department

Military Science - Army ROTC

Title

Adaptive Leadership 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

Approval Path

1. 03/04/24 1:54 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
2. 03/19/24 7:48 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Mar 20, 2015 by Lahne Black (lahne)
2. Jul 21, 2015 by pantaleoa
3. May 3, 2018 by Vickie Baker (bakervi)
4. Feb 23, 2024 by Matthew Burmeister (mrb34d)

Adaptive Leadership Minor Curriculum

The minor in adaptive leadership provides students the opportunity to learn how to analyze, identify key elements and risk, ethically solve, package, communicate and lead the solution to a variety of problems as an individual and as part of a group. Students will progressively improve leadership skill through knowledge and practice of small group leadership, versatility and critical thinking through changing conditions/environments, interpersonal skills in depth and leadership capacity, ability to affect others' skills in depth and leadership capacity, and understanding of how to develop group solutions in a complex and changing world. Feedback throughout the military science portions of the minor is provided both via the academic process and an after-action review process where successes and failures are defined using the U.S. Army's leadership attributes (as described in the U.S. Army Doctrinal Publication 6-22). The goal of the minor is to develop and provide lifelong learning tools to build confidence, leadership skills and character to, as a leader, provide a team with the purpose, direction and motivation needed to ethically solve future challenges.

The minor consists of 15 credit hours.

Required courses:

MIL ARMY 3250	Adaptive Tactical Leadership	3
MIL ARMY 3500	Leadership in Changing Environments	3
MIL ARMY 4250	Developing Adaptive Leaders	3
MIL ARMY 4500	Leadership in a Complex World	3
HISTORY 3443	The American Military Experience	<u>3</u>

Elective courses:

History: (select one course)		
HISTORY 3240	Contemporary Europe	3
HISTORY 3440	Grunts: 20th Century Americans In Combat	3
HISTORY 3443	The American Military Experience	3
HISTORY 3762	American Foreign Policy Since 1945	3

Justification for request

The courses were removed Hist 3240, Hist 3440, Hist 3762. The Army Regulations and Training and Doctrine Command regulations that govern a cadet's Professional Military Education required for commissioning defines the requirement to complete a military history class. This history class must cover American military history from the period of pre-Revolutionary America -present. The only history course offered at S&T that meets this is 3443, the other courses do not address this subject matter.

When I leave those other courses on the list of courses that meet it, it has resulted in academic advisors scheduling a cadet for one, and then the cadet having to take an additional history course 3443, to meet the commissioning standard. I am trying to minimize unnecessary courses for their degree and commissioning.

Supporting Documents**Course Reviewer Comments**

jpndf (03/04/24 12:45 pm): Added info to justification per email from department 3/1/24.

Program Change Request

A deleted record cannot be edited

Program Deactivation Proposal

Date Submitted: 03/05/24 2:19 pm

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

File: 302.19

Last approved: 09/23/22 1:41 pm

Last edit: 03/13/24 11:08 am

Changes proposed by: cecq8z

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

Start Term

Fall ~~2023~~ 2024

Program Code

MOBLB&T-CT

Department

Business and Information Technology

Title

Mobile Business and Digital Transformation 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

Approval Path

1. 03/12/24 4:02 pm
Cassie Elrod (cassa): Approved for RINFSCTE Chair
2. 03/13/24 11:11 am
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/13/24 4:13 pm
Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair
4. 03/19/24 7:48 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jun 12, 2019 by ershenb
2. Apr 2, 2021 by Cecil Eng Huang Chua (cchua)
3. Jun 10, 2021 by Cecil Eng Huang Chua (cchua)
4. Jul 19, 2021 by Marita Raper (tibbetmsg)
5. Sep 23, 2022 by

Mobile Business and Digital Transformation

Interest in the use of mobile technology and digital transformation among organizations has seen a strong, upward trend over the past few years. Indeed, many organizations now have Chief Digital Officers, whose role differs from the Chief Information Officer. The CDO's role is principally centered around positioning the organization to leverage emerging technologies, in contrast to the CIO's role of supporting existing technologies.

People capable of creating and maintaining digital technology strategies are needed.

This certificate is designed to cover managing emerging technologies. The focus will be on allowing an organization to make decisions in this dynamic domain.

A student admitted to this graduate certificate must complete four courses:

Three courses from the following list:	
IS&T 5335	Fundamentals of Mobile Technology for Business
IS&T 6641	Advanced Digital Commerce and IoT Analytics
IS&T 6654	Advanced Web Design and Digital Media Studies
IS&T 5251	Management and Leadership of Technological Innovation
IS&T 6723	Artificial Intelligence, Robotics, and Digital Transformation
ERP 5240	Enterprise Application Development and Software Security
Elective courses (choose one):	
ERP 5210	Performance Dashboard, Scorecard and Data Visualization
ERP 5310	Supply Chain Management Systems in an ERP Environment
ERP 6610	Advanced Customer Relationship Management in ERP Environment
IS&T 5652	Advanced Web Development
IS&T 5886	Prototyping Human-Computer Interactions
IS&T 5168	Law and Ethics in E-Commerce
IS&T 5680	Digital Media Development and Interactive Design
MKT 5310	Digital Marketing and Promotions

Justification for request

Low enrollment

Supporting Documents

~~[MS&T PC November 2021.pdf](#)~~

~~[Revised Proposal for Mobile Business & Tech Graduate Certificate.pdf](#)~~

Course Reviewer Comments

jpnfd (03/13/24 11:08 am): Deletion of certificate was approved by MDHEWD on 3/1/2024. Email received from the department on 3/5/24 with approval attached.

Program Change Request

New Program Proposal

Date Submitted: 03/01/24 9:08 am

Viewing: **PROPOSED : Biomedical Engineering BS**

File: 407

Last edit: 03/01/24 9:08 am

Changes proposed by: luksc

Start Term

Fall 2024

Program Code

PROPOSED

Department

Chemical and Biochemical Engineering

Title

Biomedical Engineering BS

Program Requirements and Description

In Workflow

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

Approval Path

1. 11/11/23 4:56 pm
Hu Yang (huyang):
Approved for
RCHEMENG Chair
2. 11/16/23 9:43 am
Jennifer Pohlsander
(jpnfd): Rollback to
Initiator
3. 12/13/23 12:22 pm
Hu Yang (huyang):
Approved for
RCHEMENG Chair
4. 12/20/23 2:26 pm
Jennifer Pohlsander
(jpnfd): Approved
for CCC Secretary
5. 01/08/24 8:58 pm
Mark Fitch (mfitch):
Rollback to Initiator
6. 02/06/24 2:48 pm
Hu Yang (huyang):
Approved for
RCHEMENG Chair
7. 02/08/24 1:04 pm
Jennifer Pohlsander
(jpnfd): Approved
for CCC Secretary
8. 02/28/24 8:40 am
Jennifer Pohlsander
(jpnfd): Rollback to
Initiator
9. 02/29/24 6:52 pm
Hu Yang (huyang):
Rollback to Initiator
10. 03/01/24 9:21 am
Hu Yang (huyang):

Approved for
 RCHEMENG Chair
 11. 03/01/24 10:54 am
 Jennifer Pohlsander
 (jpnfd): Approved
 for CCC Secretary
 12. 03/05/24 1:03 pm
 Mark Fitch (mfitch):
 Approved for
 Engineering DSCC
 Chair
 13. 03/19/24 7:48 am
 Jennifer Pohlsander
 (jpnfd): Approved
 for Pending CCC
 Agenda post

**Bachelor of Science
 Biomedical Engineering**

The biomedical engineering program at Missouri S&T is designed to prepare students for engineering careers in the health and life-sciences field. The two tracks focus on biomanufacturing and on biomaterials and can be customized to accommodate students preparing for medical school. The interdisciplinary program will equip graduates with the knowledge and skills required to excel in career paths in biotechnology, biomedical device development, pharmaceutical manufacturing, and healthcare management.

For the bachelor of science degree in biomedical engineering a minimum of 129 credit hours is required. These requirements are in addition to credit received for algebra, trigonometry and basic ROTC courses. An average of at least two grade points per credit hour (equivalent to a grade of C) must be attained. At least two grade points per credit hour must also be attained in all courses taken in biomedical engineering (BME), chemical engineering (Chem Eng), and materials science and engineering (MS&E).

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

1. All students are required to take one American history course, one economics course, one humanities course, and [ENGLISH 1120](#). The history course is to be selected from [HISTORY 1200](#), [HISTORY 1300](#), [HISTORY 1310](#), or [POL SCI 1200](#). The economics course may be either [ECON 1100](#) or [ECON 1200](#). The humanities course must be selected and meet the requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog.
2. Depth requirement. Three credit hours must be taken in humanities or social sciences at the 2000 level or above and must be selected from the approved list. This course must have as a prerequisite one of the humanities or social sciences courses already taken. Foreign language courses numbered 1180 will be considered to satisfy this requirement. Students may receive humanities credit for foreign language courses in their native tongue only if the course is at the 3000 level or above. All courses taken to satisfy the depth requirement must be taken after graduating from high school.
3. The remaining courses are to be chosen and meet the requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog and may include one communications course in addition to [ENGLISH 1120](#).
4. Any specific departmental requirements in the general studies area must be satisfied and meet the requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog. The prerequisites for the upper level course must be completed with a passing grade.
5. Special topics, special problems, and honors seminars are allowed only by petition to and approval by the student's department chairman.
6. Biomedical engineering and chemical engineering majors are encouraged to take the fundamentals of engineering exam prior to graduation. It is the first step toward becoming a registered professional engineer.
7. Students pursuing a pre-med minor should consider taking BIO SCI 1113 and BIO SCI 1219 (4 cr. hr.) in year 1, which will count as a track elective. ECON 1100 or ECON 1200 can be taken in a later semester.

**Biomedical Engineering
 Biomanufacturing Track**

Freshman Year			
First Semester	Credits	Second Semester	Credits

FR ENG 1100	1	CHEM 1320	3
CHEM 1100	1	COMP SCI 1500 or 1972 and 1982	3
CHEM 1310	4	MATH 1215 ⁴	4
CHEM 1319	1	PHYSICS 1135	4
MATH 1214 or 1211 ⁴	4	ECON 1100 or 1200	3
ENGLISH 1120	3		
HISTORY 1200 , or 1300 , or 1310 , or POL SCI 1200	3		
	17		17
Sophomore Year			
First Semester	Credits	Second Semester	Credits
CHEM ENG 2100 ¹	4	CHEM ENG 2110 ¹	3
MATH 2222	4	CHEM ENG 3210	3
PHYSICS 2135	4	CHEM 2210	3
BIO SCI 2213	3	CHEM 2219	1
BIO SCI 2219	1	MATH 3304	3
		Track Elective ³	3
	16		16
Junior Year			
First Semester	Credits	Second Semester	Credits
BME 3100	4	CHEM ENG 3150	3
CHEM ENG 3120 ¹	3	CHEM ENG 5250	3
BIO SCI 3333	3	Track Elective ³	3
BIO SCI 3339	1	SP&M S 1185	3
STAT 3425	4	ENGLISH 3560	3
PHILOS 3223	3		
	18		15
Senior Year			
First Semester	Credits	Second Semester	Credits
BME 4091	3	BME 4097 ²	3
CHEM ENG 4201	3	BME 5300	3
CHEM ENG 4210	3	CHEM ENG 4220	3
CHEM ENG 4241	3	Track Elective ³	3
MS&E 5210	3	Upper Level Humanities or Social Science Elective	3
	15		15
Total Credits: 129			

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

1

A grade of "C" or better is required in [CHEM ENG 2100](#) & [CHEM ENG 2110](#) in order to enroll in Chem Eng 3120 .

2

Communications emphasized course (See bachelor of science degree, general education communications requirement).

3

A minimum of 9 cr. hr. from BIO SCI 1113 and BIO SCI 1219, or BIO SCI 2223, or BIO SCI 3783, or BIO SCI 4353, or BIO SCI 4373, or CHEM 2220 and CHEM 2229, or CHEM ENG 3131, or CHEM ENG 3141, or CHEM ENG 4110, or BME 5100, or BME 5200, or BME 4099, or any class from the

approved list published on the Chemical Engineering web site. Only 3 cr. hr. of BME 4099 may be used.

4

MATH 1208 or MATH 1210 and MATH 1211 may be substituted for MATH 1214. MATH 1221 may be substituted for MATH 1215.

Biomedical Engineering

Biomaterials Track

Freshman Year			
First Semester	Credits	Second Semester	Credits
FR ENG 1100	1	CHEM 1320	3
CHEM 1100	1	COMP SCI 1500 or 1972 <i>and</i> 1982	3
CHEM 1310	4	MATH 1215 ³	4
CHEM 1319	1	PHYSICS 1135	4
MATH 1214 or 1211 ³	4		
ENGLISH 1120	3		
HISTORY 1200 , or 1300 , or 1310 , or POL SCI 1200	3		
	17		14
Sophomore Year			
First Semester	Credits	Second Semester	Credits
CER ENG 2210	2	CER ENG 3230	3
CHEM 2210	3	CIV ENG 2200	3
MATH 2222	4	CHEM 2220	3
PHYSICS 2135	4	MATH 3304	3
BIO SCI 2213	3	STAT 3425	4
BIO SCI 2219	1		
	17		16
Junior Year			
First Semester	Credits	Second Semester	Credits
CHEM ENG 3210	3	CER ENG 3220	3
BME 3100	4	MS&E 5210	3
BME 4100	3	Track Elective ²	3
BIO SCI 3333	3	SP&M S 1185	3
BIO SCI 3339	1	ENGLISH 3560	3
ECON 1100 or 1200	3		
	17		15
Senior Year			
First Semester	Credits	Second Semester	Credits
BME 4091	3	BME 4097 ¹	3
MS&E 5310	3	BME 5100	3
Track Elective ²	3	BME 5200	3
PHILOS 3223	3	BIO SCI 3783	3
Upper Level Humanities or Social Science Elective	3	Track Elective ²	3
		Track Elective ²	3
	15		18

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

1

Communications emphasized course (See bachelor of science degree, general education communications requirement).

2

A minimum of 12 cr. hr. of track electives. At least 3 must be selected from CHEM ENG 5250 or MS&E 4810 or MS&E 5810 or ELEC ENG 2100 and ELEC ENG 2101 or ELEC ENG 2200 and ELEC ENG 2201 or BME 4099. The remaining 9 cr. hr. may be from that list or BIO SCI 1113 and BIO SCI 1219 or BIO SCI 4383 or BIO SCI 4666 or BIO SCI 5533 or CHEM 2219 or CHEM 2229. Only 3 cr. hr. of BME 4099 may be used.

3

MATH 1208 or MATH 1210 and MATH 1211 may be substituted for MATH 1214. MATH 1221 may be substituted for MATH 1215.

Justification for request

This is a new focus area for the university that should increase enrollment. This proposal includes several new courses.

Supporting Documents

[MDHE Approval Letter_S&T_October 2023.pdf](#)

[mstbsbiomedicaleng.pdf](#)

[Biomedical Engineering BS- Email Steve Raper.pdf](#)

[FlowchartsBME.pdf](#)

Course Reviewer Comments

jpnfd (11/16/23 9:43 am): Rollback: Please attach the full approved MDHE proposal showing the list of approved courses for the program. Submit CC forms for co-listed courses and new courses. Use the Plan of Study Grid feature to enter the courses for the Biomanufacturing Track and Biomaterials Track.

jpnfd (12/15/23 9:18 am): Added BS to title

jpnfd (12/20/23 2:26 pm): Email attached from Steve Raper stating, "Please move this forward in the process so that the DSCC can evaluate and move forward so that it shows up on the next appropriate CCC/FS Agenda. No further changes should be made on the form."

mfitch (01/08/24 8:58 pm): Rollback: Issues I found in both tracks: a) Maybe add to the "An average of at least two grade points per credit hour must be attained. At least two grade points per credit hour must also be attained in all courses taken in chemical engineering" that two grade points is a C? Thus "An average of at least two grade points per credit hour (equivalent to a grade of C) must be attained. At least two grade points per credit hour must also be attained in all courses taken in chemical engineering." b) Also maybe change "chemical engineering" to "biomedical engineering". c) I strongly suggest ChE provide a flowchart showing every prerequisite for every class. d) please do CC forms for BME 1001, 2001, 3001, 4001, and 5001 so that in the future (approval assumed) BME can offer EC classes. For the BME-Biomanufacturing, some comments: e) Footnote 5 about track classes is not clear, it seems to need some commas at least. f) The Track Elective for the second semester of the freshman year appears to me to be Bio Sci 1113 + Bio Sci 1219 because all the other classes listed in footnote 5 have prerequisites. Given those prereqs, I suggest also showing a chart of the track electives and their prerequisites. g) Why is Chem 2110 in semester four for the biomanufacturing track but semester three for the biomaterials track? h) Chem Eng 5250 "(Track Elective)5,7" is not listed as a track elective and does not seem to require Bio Sci 1113 + 1219 as a prereq which is footnote 7. i) Chem Eng 4220 "(Track Elective)5,7" is not listed as a track elective and does not seem to require Bio Sci 1113 + 1219 as a prereq which is footnote 7. For the BME-biomaterials track: j) For the biomaterials track, Bio Sci 3333 is required, which has a prereq of "Bio Sci 1113 or 1213; Bio Sci 2213" so it appears Bio Sci 1113 or 1213 is required in the degree but not explicitly listed. k) Cer Eng 3220 is listed in the same semester as Cer Eng 3230, but Cer Eng 3220 has 3230 as a prerequisite. l) First semester footnote 6 should be footnote 5. m) Final semester footnote 4 should be footnote 3.

n) Should students be taking 5XXX-level courses, “Entry and mid-level graduate courses (undergraduate enrollment allowed)”, in the junior year? Most of this is clean-up, but I have significant concern that the track elective in the freshman year can only be Bio Sci 1113 + 1219, and thus is not an elective or maybe the proposal has something missing?

jpnfd (02/07/24 11:56 am): Updated format under plan of study grid.

jpnfd (02/07/24 11:57 am): Updated format under plan of study grid.

jpnfd (02/07/24 12:40 pm): Formatting clean up in plan of study grid.

jpnfd (02/07/24 1:43 pm): Corrected hyperlink error.

jpnfd (02/08/24 9:35 am): Credit hours update to 129 in second paragraph. Under biomanufacturing track: removed footnote 2 from BME 4091 & BME 4097, changed upper level humanities from footnote 3 to 4. Dept. states footnote 2 and 3 are standalone as general comments for the curriculum. Under Biomaterials Track: Changed Math 1215 from footnote 6 to 5, removed footnote from BME 4091 & BME 4097, track elective-removed footnote 6. Department states footnote 2 and 3 are standalone as general comments for the curriculum. Footnote 6- department stated, "The footnote in senior year references the freshman year because the college curriculum committee objected to us having these electives listed in the freshman year. This is primarily an advising note – almost a standalone note."

jpnfd (02/08/24 10:56 am): Added #6 & 7 to description area- information listed was formerly in footnotes. Removed unnecessary footnotes and updated corresponding footnote numbers after moving general info to description area from footnote area.

jpnfd (02/08/24 11:13 am): Edited spacing.

jpnfd (02/08/24 12:52 pm): Per Dept, added, "Students pursuing a pre-med minor should consider taking BIO SCI 1113 and BIO SCI 1219 (4 cr. hr.) in year 1, which will count as a track elective. ECON 1100 or 1200 can be taken in later semester."

jpnfd (02/21/24 9:39 am): Per email 2/21/24 from Dr. Raper, removed, "A cumulative grade point average of 2.50 or better and a “C” or better in Chem 1310, Chem 1319, Chem 1320, Math 1214, Math 1215, and Physics 1135 are required to be admitted into the Chemical Engineering major." The only entry requirements into the major are those in admissions like it is for all the other engineering programs since we have gone to direct admits. Biomfg track, First semester, sophomore year: Chem Eng 2100 added footnote 1. Senior year, Second Semester, Upper Level HSS removed footnote 4. Biomaterials track, senior year, first semester, Upper HSS removed footnote 3.

jpnfd (02/28/24 8:39 am): Corrected grammatical errors under rules: 1. changed “meets” to “meet” 3. changed “course” to “courses” and “meets” to “meet” 4. changed “meets” to “meet.”

jpnfd (02/28/24 8:40 am): Rollback: Rollback to initiator for revisions.

hy57v (02/29/24 6:52 pm): Rollback: Revise flowchart

Program Change Request

Date Submitted: 03/01/24 11:51 am

Viewing: **STATS-CT : Statistics**

File: 286.2

Last approved: 07/28/21 12:00 pm

Last edit: 03/18/24 9:40 am

Changes proposed by: singlerj

Catalog Pages Using this Program

[Mathematics and Statistics](#)

Start Term

Fall ~~2024~~ 2024

Program Code

STATS-CT

Department

MATH

Title

Statistics

Program Requirements and Description

Statistics

Program Description:

The department of mathematics and statistics offers a variety of theoretical and applied statistics courses that are taken by an appreciable number of graduate students from outside our department. Many of these students go on to take more than one graduate level statistics course during their academic career at S&T. They find these courses not only interesting, but also useful in their work as engineers and experimental scientists. This certificate program will enable these students to obtain credentials in an area that is outside their main discipline yet will be very useful in their practice as engineers and scientists. Such credentials will also set them apart from others within their discipline. In the past many of the students from engineering and sciences disciplines enrolled in our statistics courses have expressed great interest in obtaining a graduate certificate in statistics.

Admission:

In Workflow

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

Approval Path

1. 03/05/24 2:11 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
2. 03/18/24 9:40 am
Katie Shannon (shannonk): Approved for Sciences DSCC Chair
3. 03/19/24 7:48 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Jul 28, 2021 by
Crystal Wilson (wilsoncry)

The graduate certificate program is open to all individuals holding a BS degree in mathematics, statistics, or in an engineering or hard scientific discipline with a B average or better in coursework taken for the BS degree. In addition, the applicant must have a minimum of two years of professional experience or currently be accepted into a graduate degree program at Missouri S&T.

Students who are not currently enrolled in a graduate degree program at Missouri S&T but are admitted to the certificate program will have non-degree graduate status but will earn graduate credit for the courses they complete. The courses in the certificate program will be offered such that students can complete the program in a timely manner. The certificate courses taken by students admitted to the program will count towards any graduate degree offered by the department of mathematics and statistics if approved by the student's academic committee.

Once admitted to the program, a student will be given three years to complete the program. ~~program as long as 3.0 grade point average is maintained in the courses taken.~~ A 3.0 grade point average must be maintained in the courses taken.

Curriculum:

To obtain a the graduate certificate in statistics, ~~statistics~~ students must ~~select an option from the options given below and~~ complete the following required courses; ~~all of the requirements under that option by obtaining passing grades in all courses taken to satisfy the stipulated requirements while maintaining a 3.0 cumulative grade point average.~~

<u>Required Courses:</u>	
<u>STAT 5643</u>	<u>Probability And Statistics</u>
<u>STAT 5346</u>	<u>Regression Analysis</u>
<u>Two other STAT courses at the 4000-level or above</u>	

~~OPTION I-Foundations and Focused Applications OPTION 2-Applied Statistics OPTION III-Theory and Applications All the above courses listed in Options I, II, and III must be taken for graduate credit and cannot be counted towards requirements of an undergraduatedegree.~~

<u>Required:</u>		
<u>STAT 5643</u>	<u>Probability And Statistics</u>	<u>3</u>
<u>Choose three courses from the following:</u>		
<u>STAT 5260</u>	<u>Statistical Data Analysis Using SAS</u>	<u>3</u>
<u>STAT 3425</u>	<u>Introduction to Biostatistics</u>	<u>4</u>
<u>STAT 5814</u>	<u>Applied Time Series Analysis</u>	<u>3</u>
<u>STAT 5346/COMP SCI 5204</u>	<u>Regression Analysis</u>	<u>3</u>
<u>STAT 5353</u>	<u>Statistical Data Analysis</u>	<u>3</u>
<u>STAT 6239/COMP ENG 6330/ELEC ENG 6830/SYS ENG 6214/COMP SCI 6405</u>	<u>Clustering Algorithms</u>	<u>3</u>
<u>STAT 6343</u>	<u>Nonparametric Statistical Methods</u>	<u>3</u>
<u>STAT 6344</u>	<u>Design And Analysis Of Experiments</u>	<u>3</u>
<u>STAT 6545</u>	<u>Multivariate Statistical Methods</u>	<u>3</u>
<u>STAT 6570</u>	<u>Theory Of Reliability</u>	<u>3</u>

<u>Choose four courses from the following:</u>		
<u>STAT 5260</u>	<u>Statistical Data Analysis Using SAS</u>	<u>3</u>
<u>STAT 3425</u>	<u>Introduction to Biostatistics</u>	<u>4</u>
<u>STAT 5814</u>	<u>Applied Time Series Analysis</u>	<u>3</u>
<u>STAT 5346/COMP SCI 5204</u>	<u>Regression Analysis</u>	<u>3</u>
<u>STAT 5353</u>	<u>Statistical Data Analysis</u>	<u>3</u>
<u>STAT 6239/COMP ENG 6330/ELEC ENG 6830/SYS ENG 6214/COMP SCI 6405</u>	<u>Clustering Algorithms</u>	<u>3</u>
<u>STAT 6343</u>	<u>Nonparametric Statistical Methods</u>	<u>3</u>
<u>STAT 6344</u>	<u>Design And Analysis Of Experiments</u>	<u>3</u>
<u>STAT 6545</u>	<u>Multivariate Statistical Methods</u>	<u>3</u>

STAT 6570	Theory Of Reliability	3
Required:		
STAT 5643	Probability And Statistics	3
STAT 5644	Mathematical Statistics	3
Select one of the three groups listed below and complete two of the courses in that group:		
GROUP 1 – Modeling Empirical Processes		
STAT 5814	Applied Time Series Analysis	3
or STAT 6814	Statistical Time Series Analysis	
STAT 6841	Stochastic Processes	3
GROUP 2 – Classical Tools for Data Analysis		
STAT 5346/COMP SCI 5204	Regression Analysis	3
STAT 5353	Statistical Data Analysis	3
STAT 6344	Design And Analysis Of Experiments	3
GROUP 3 – Advanced Topics in Statistical Methods and Modeling		
STAT 6239/COMP ENG 6330/ELEC ENG 6830/SYS ENG 6214/COMP SCI 6405	Clustering Algorithms	3
STAT 6343	Nonparametric Statistical Methods	3
STAT 6545	Multivariate Statistical Methods	3
STAT 6553	Linear Statistical Models I	3
STAT 6570	Theory Of Reliability	3

Justification for request

The proposed change greatly simplifies the requirements for the statistics graduate certificate. This will enable us to better advertise the certificate to prospective and current students. This will also simplify the advising process for certificate students and will enable students to easily create a plan of study.

Supporting Documents

[Revised Proposal for Statistics GRCT.pdf](#)

Course Reviewer Comments

jpnfd (03/05/24 11:44 am): Updated effective date o Fall 2024.

jpnfd (03/05/24 12:01 pm): Added course list table.

jpnfd (03/05/24 12:50 pm): Edited course list format.

shannonk (03/18/24 9:40 am): The sentence "student will be given three years to complete the program as long as 3.0 grade point average is maintained in the courses taken." to clarify based on DSCC comments

Program Change Request

Date Submitted: 03/11/24 10:10 am

Viewing: **TP&E-CTU : ~~UCT~~ Technology, Philosophy, and Ethical Futures CTU**

File: 368.19

Last approved: 08/03/21 2:49 pm

Last edit: 03/12/24 11:36 am

Changes proposed by: cht3m

Catalog Pages Using this Program

[Philosophy](#)

Start Term

Fall 2024 ~~2024~~

Program Code

TP&E-CTU

Department

Arts, Languages, & Philosophy

Title

~~UCT~~ Technology, Philosophy, and Ethical Futures CTU

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

Approval Path

1. 03/11/24 12:41 pm
Irina Ivliyeva (ivliyeva): Approved for RPHILOSO Chair
2. 03/12/24 10:39 am
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/12/24 11:09 am
Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
4. 03/19/24 7:48 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post

History

1. Feb 3, 2021 by Patrick Gamez (gamezp)
2. Aug 3, 2021 by Crystal Wilson (wilsoncry)

Technology, Philosophy, and Ethical Futures

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	
PHILOS 4554	Technology, Ethics, and Philosophy	<u>3</u>
3 credits from:		
PHILOS 1105	Self and World: Introduction To Philosophy	3
PHILOS 1130	How Should I Live? An 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	Creating Future Cities	3
PSYCH 4710	Human Factors	3
PSYCH 4720	Psychology of Social Technology	3
HISTORY 3510	Twentieth Century Technology And Society	3
POL SCI 4320	The Politics of Innovation	3

Justification for request
 Course number update
 Supporting Documents
 Course Reviewer Comments
jpnfd (03/11/24 10:12 am): Update course number
jpnfd (03/11/24 10:13 am): Update format
jpnfd (03/11/24 12:49 pm): PHILOS 4666 was renumbered to PHILOS 4554. DC submitted to update the catalog.
dewittp (03/12/24 11:08 am): Updated effective date.
jpnfd (03/12/24 11:36 am): Title updated from UTC to the proper format CTU.

Course Change Request

New Experimental Course Proposal

Date Submitted: 02/29/24 2:33 pm

Viewing: **MECH ENG 3001.001 : Additive Manufacturing Processes**

File: 5060

Last edit: 02/29/24 3:59 pm

Changes proposed by: nkwtb

Requested	Fall 2024
Effective Change Date	
Department	Mechanical & Aerospace Engineering
Discipline	Mechanical Engineering (MECH ENG)
Course Number	3001
Topic ID	001
Experimental Title	Additive Manufacturing Processes
Experimental Abbreviated Course Title	Additive Manufac Process
Instructors	Dr. Richard Billo

Experimental

Catalog

Description

Introduces principles and application of additive technologies for the development of advanced manufacturing processes. Topics and laboratory component include design for additive manufacturing, laser powder bed fusion, directed energy deposition, cold spray additive manufacturing, post processing, and common defects.

Prerequisites

Mech Eng 2653.

In Workflow

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

Approval Path

1. 02/29/24 3:20 pm
David Bayless (djbkqf):
Approved for RMECHENG Chair
2. 02/29/24 3:59 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/05/24 1:02 pm
Mark Fitch (mfitch):
Approved for Engineering DSCC Chair
4. 03/19/24 7:48 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC

Field Trip
Statement

None

Credit Hours

LEC: 2

LAB: 1

IND: 0

RSD: 0

Total: 3

Justification for
new course:

Additive manufacturing (AM) is an emerging technology and has received a lot of interest from the manufacturing industry. To enhance the strength and participation at the undergraduate level in the manufacturing emphasis area, a 3xxx level elective course in AM is proposed. This 2-credit lecture + 1-credit lab course will provide the students a) with the skillset required to be successful in the manufacturing industry and b) an additional option to pick a course from the current list of elective courses.

Semester(s)
previously taught

Not Applicable

Co-Listed
Courses:

Course Reviewer
Comments

jpnfd (02/29/24 3:59 pm): Updated prerequisite format.

Course Change Request

New Experimental Course Proposal

Date Submitted: 02/21/24 12:33 pm

Viewing: **MECH ENG 5001.008 : Introduction to Design Optimization**

File: 5056

Last edit: 02/22/24 1:41 pm

Changes proposed by: nkwtb

Requested	Fall 2024
Effective Change Date	
Department	Mechanical & Aerospace Engineering
Discipline	Mechanical Engineering (MECH ENG)
Course Number	5001
Topic ID	008
Experimental Title	Introduction to Design Optimization
Experimental Abbreviated Course Title	Intro to Design Optimizn
Instructors	Dr. Xiaosong Du

Experimental Catalog Description

This course presents the theoretical foundation of engineering optimal design and elaborates on solving engineering design problems using optimization techniques and machine learning methods. The outcomes of this course are: (1) an ability to formulate relevant engineering problems into optimization architectures; (2) an ability to identify appropriate optimization schemes for different optimal design applications; (3) an ability to leverage widely accepted machine learning strategies for facilitating design optimizations. This course also helps students improve their programming skills dealing with data and simulation, especially within Matlab or

In Workflow

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

Approval Path

1. 02/21/24 1:46 pm
David Bayless (djbkqf): Approved for RMECHENG Chair
2. 02/22/24 1:41 pm
Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 03/01/24 4:44 pm
Mark Fitch (mfitch): Approved for Engineering DSCC Chair
4. 03/19/24 7:48 am
Jennifer Pohlsander (jpnfd): Approved for Pending CCC

python. This course is lecture based with group projects involved.

Agenda post

Prerequisites	Math 2222 or Math 3304.				
Field Trip Statement	None				
Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0	Total: 3

Justification for new course: Engineering design optimization is essential in the engineering industry; however, our current curriculum lacks an optimization class thoroughly covering relevant contents. This planned class will be covering optimization formulations, unconstrained and constrained optimizations, derivative-free and gradient-based optimizers, and machine learning (ML) contents added for engineering applications. The engineering design and ML materials are extensible to students' own research, which make the class even more beneficial.

Semester(s) previously taught Not Applicable

Co-Listed Courses: AERO ENG 5001 - Special Topics

Course Reviewer
Comments