



MISSISSIPPI STATE
UNIVERSITY[™]

*UNIVERSITY COMMITTEE ON
COURSES AND CURRICULA*

A MEMORANDUM

DATE: August 23, 2021
TO: UCCC Members
FROM: Dr. Andy Perkins, Chair
SUBJECT: UCCC Meeting on Friday, September 3, 2021 at 1:30 p.m.

The agenda and proposals for the meeting on **September 3, 2021 at 1:30 p.m. in the Trotter Room (Room 2200) of the Center for Advanced Vehicular Systems in the Research Park** are enclosed. The minutes will be forwarded by a separate email. Please contact the UCCC Office if you are unable to attend the meeting.

Thank you.

Enclosures: Course/Curriculum Proposals

AGENDA
UNIVERSITY COMMITTEE ON COURSES AND CURRICULA
September 3, 2021

1. Welcome
2. Approval of minutes
3. Course proposals by college/school

ACADEMIC AFFAIRS

Addition	LSK 1063	Luckyday Scholars Program Course
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AGRICULTURE AND LIFE SCIENCES

Modification	EPP 8173	Clinical and Applied Mycology (cross listed with FNH 8173)
+Online/Distance	FDM 2524	Textiles for Apparel
+Online/Distance	FDM 2593	Product Development II
Addition +Online/Distance	FDM 3213	Fashion Forecasting
Addition	FNH 8173	Clinical and Applied Mycology (cross listed with EPP 8173)
Modification +Online/Distance	PSS 4393/6393	Agriculture Remote Sensing II

ART AND SCIENCES

Modification	CRM 4153	Mentoring Youths
Modification	EN 3243	Writing Center Tutor Training
Addition +Online/Distance	GG 6543 (split level with 4543)	Community Engagement in Environmental Geosciences
Modification	HI 4743/6743	War, Diplomacy, and Statecraft in Europe, 1648-1989
Modification	MA 1453	Precalculus

EDUCATION

Addition +Online/Distance +Meridian	EDX 3253	Evaluating Learning in Special Education
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ENGINEERING

Addition +Online/Distance	CHE 4173/6173	Polymer Science & Technology
+Online/Distance	ECE 1022	Introduction to ECE Design II
+Online/Distance	ECE 3323	Electromagnetics II (tabled at March 5, 2021 meeting)
+Online/Distance	ECE 8673	Computer Methods in Power System Analysis
Addition +Distance +Gulf Coast	IE 4683/6683	Machine Learning with Industrial Engineering Applications

4. Degree proposals by college/school

ARTS & SCIENCES

Modification	MS	Psychology
Modification	PhD	Applied Psychology/Clinical Psychology, Cognitive Science

ENGINEERING

Modification	MS	Industrial and Systems Engineering
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APPROVAL FORM FOR
DEGREE PROGRAMS
MISSISSIPPI STATE UNIVERSITY

NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the *Guide and Format for Curriculum Proposals* published by the UCCC. Both cover sheet and proposal should be submitted to UCCC Mail Stop 9702 (281 Garner Hall), Phone: 325-9410.

College: Arts & Sciences

Department: Psychology

Contact Person: Kevin Armstrong **Mail Stop:** 9514 **E-mail:** kja3@msstate.edu

Nature of Change: Modification **Date Initiated:** 3/18/2021 **Effective Date:** 8/16/2021

Current Degree Program Name: Master of Science

Major: Psychology **Concentration:** NA

New Degree Program Name: Master of Science

Major: Psychology **Concentration:** NA

Summary of Proposed Changes:

An additional option to satisfy the research methods training is included along with a 3-hour reduction in the number of elective hours required.

Approved:

Date:

Mitchell Berman

March 19, 2021

Department Head

Heather R. Jordan

Digitally signed by Heather R. Jordan
Date: 2021.04.23 12:38:20 -05'00'

Chair, College or School Curriculum Committee

Dean of College or School

Chair, University Committee on Courses and Curricula

Chair, Graduate Council(if applicable)

April 23, 2021

Chair, Deans Council

1. Catalog Description

No changes are being proposed to the catalog description as shown in the table below.

2. Curriculum Outline

CURRENT Degree Description		PROPOSED Degree Description	
Degree: Master of Science Major: Psychology Concentrations: NA		Degree: Master of Science Major: Psychology Concentrations: NA	
The Department of Psychology offers a doctoral degree in Applied Psychology. The objective of the program is to train applied psychologists for employment in business, industry, engineering, college, university, clinical, and other applied settings. Concentrations are offered in the areas of Cognitive Science and Clinical. The department does not offer a terminal master's degree. Students who do not already possess a master's degree earn one along the way.		The Department of Psychology offers a doctoral degree in Applied Psychology. The objective of the program is to train applied psychologists for employment in business, industry, engineering, college, university, clinical, and other applied settings. Concentrations are offered in the areas of Cognitive Science and Clinical. The department does not offer a terminal master's degree. Students who do not already possess a master's degree earn one along the way.	
CURRENT CURRICULUM OUTLINE	Required Hours	PROPOSED CURRICULUM OUTLINE	Required Hours
PSY 8214 Quant. Methods in Psych II	4	PSY 8214 Quant. Methods in Psych II	4
PSY 8513 Psychological Research	3	Choose one of the following two courses: PSY 8513 Psychological Research PSY 8713 Issues and Methods in Cognitive Psychology	3
PSY 8000 Thesis Research	6	PSY 8000 Thesis Research	6
Elective Hours	27	Elective Hours	24
Total Hours	40	Total Hours	37

3. Justification and Student Learning Outcomes

These changes are necessary to allow this degree to continue serving as a milestone in our doctoral program. Due to changes in the doctoral degree detailed in the accompanying degree modification for the Ph.D. in Applied Psychology, the cognitive science concentration of the doctoral degree no longer requires the PSY 8513 Research Methods course. This master's degree serves as a milestone in the doctoral program, and therefore we need to also modify this degree to include PSY 8713 Issues and Methods in Cognitive Psychology as an option to fulfill the research methods requirement of the master's degree. The only other change is to reduce the number of elective hours from 27 to 24. Currently, students in the cognitive science concentration require five semesters to meet the 27-hour elective requirement. Changing this number to 24 hours will enable them to meet the course requirements for the master's degree in four semesters.

There is no change to the student learning outcomes for our program. They remain as follows:

- Students will understand major theories and models in psychology.
- Students will understand and apply research methods in psychology.
- Students will demonstrate the ability to disseminate research findings.

4. Support

A letter of support from the psychology department graduate curriculum committee is attached.

5. Proposed 4-Letter Abbreviation

No change to the 4-letter abbreviation is needed.

6. Effective Date

8/16/2021 (Fall 2021 Semester)



MISSISSIPPI STATE
UNIVERSITY™

Department of Psychology

Magruder Hall
P.O. Box 6161
255 Lee Boulevard
Mississippi State, MS 39762
Phone: 662-325-3202
FAX: 662-325-7212

March 18, 2021

UCCC and Reviewers

The Graduate Curriculum Committee in the Department of Psychology is pleased to write this letter of support for the Ph.D. and M.S. degree modifications, and the associated course proposals submitted on behalf of the Cognitive Science program as listed below.

New Courses

PSY 8643 Psycholinguistics
PSY 8663 Individual Differences in Cognition
PSY 8673 Models of Cognition Seminar

Course Modifications

PSY 8743 Perception and Attention
PSY 8753 Advanced Human Memory
PSY 8763 Expertise and Cognitive Skill Acquisition
PSY 8773 Computational Cognitive Neuroscience

The members of the Psychology Department's Graduate Committee have reviewed and approved these proposals.

Respectfully,

A handwritten signature in black ink, appearing to read 'Kevin J. Armstrong'.

Kevin J. Armstrong, Ph.D.
Associate Professor
Graduate Coordinator, Psychology Department

A handwritten signature in black ink, appearing to read 'Jarrod Moss'.

Jarrod Moss, Ph.D.
Associate Professor
Graduate Committee Member

A handwritten signature in black ink, appearing to read 'Michael R. Nadorff'.

Michael R. Nadorff, Ph.D.
Associate Professor
Graduate Committee Member

APPROVAL FORM FOR
DEGREE PROGRAMS
MISSISSIPPI STATE UNIVERSITY

NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the *Guide and Format for Curriculum Proposals* published by the UCCC. Both cover sheet and proposal should be submitted to UCCC Mail Stop 9702 (281 Garner Hall), Phone: 325-9410.

College: Arts & Sciences

Department: Psychology

Contact Person: Kevin Armstrong **Mail Stop:** 9514 **E-mail:** kja3@msstate.edu

Nature of Change: Modification **Date Initiated:** 3/18/2021 **Effective Date:** 8/16/2021

Current Degree Program Name: Doctor of Philosophy

Major: Applied Psychology **Concentration:** Clinical Psychology, Cognitive Science

New Degree Program Name: Doctor of Philosophy

Major: Applied Psychology **Concentration:** Clinical Psychology, Cognitive Science

Summary of Proposed Changes:

The Cognitive Science concentration is being updated. We are adjusting the curriculum to reduce the required course load for students in order to allow more time for research training and publication opportunities and to create more flexibility in the structure of the curriculum to accommodate the evolution of research specializations represented in our faculty.

Approved:

Date:

Mitchell Berman

March 19, 2021

Department Head

Heather R.

Digitally signed by Heather R.

Jordan

Jordan

Date: 2021.04.23 12:38:50

-05'00'

Chair, College or School Curriculum Committee

[Handwritten Signature]

Dean of College or School

4/23/2021

Chair, University Committee on Courses and Curricula

Chair, Graduate Council(if applicable)

Chair, Deans Council

1. Catalog Description

No changes are being proposed to the catalog description as shown in the table below.

2. Curriculum Outline

CURRENT Degree Description		PROPOSED Degree Description	
Degree: Doctor of Philosophy Major: Applied Psychology Concentrations: (1) Cognitive Science; (2) Clinical		Degree: Doctor of Philosophy Major: Applied Psychology Concentrations: (1) Cognitive Science; (2) Clinical	
The Department of Psychology offers a doctoral degree in Applied Psychology. The objective of the program is to train applied psychologists for employment in business, industry, engineering, college, university, clinical, and other applied settings. Concentrations are offered in the areas of Cognitive Science and Clinical.		The Department of Psychology offers a doctoral degree in Applied Psychology. The objective of the program is to train applied psychologists for employment in business, industry, engineering, college, university, clinical, and other applied settings. Concentrations are offered in the areas of Cognitive Science and Clinical.	
Description of the Cognitive Science (“Cognitive”) concentration in Applied Psychology: The Cognitive concentration focuses on the interplay and <i>linkages between cognitive psychology, advances in computer science and engineering</i> , the varying cognitive abilities of individuals, and demands for people to use technology more easily and efficiently.		Description of the Cognitive Science (“Cognitive”) concentration in Applied Psychology: The Cognitive concentration focuses on the interplay and applications of cognitive psychology, computational models of cognition, the varying cognitive abilities of individuals, and demands for people to use technology more easily and efficiently.	
Description of the Clinical concentration in Applied Psychology: The Clinical concentration focuses on the study and application of psychological science involving both normal and pathological human behavior, drawing from the cognitive, social, and biological arenas as well as computer science and advanced technologies.		Description of the Clinical concentration in Applied Psychology: The Clinical concentration focuses on the study and application of psychological science involving both normal and pathological human behavior, drawing from the cognitive, social, and biological arenas as well as computer science and advanced technologies.	
CURRENT CURRICULUM OUTLINE	Required Hours	PROPOSED CURRICULUM OUTLINE	Required Hours
Cognitive Science Concentration Courses		Cognitive Science Concentration Courses	
Research Methods and Quantitative Core	10	Research Methods and Quantitative Core	10
PSY 8214 Quant. Methods in Psych II PSY 8803 Advanced Quant. Methods PSY 8513 Psychological Research Method		PSY 8214 Quant. Methods in Psych II PSY 8803 Advanced Quant. Methods PSY 8713 Issues and Methods in Cog Psy	
Dissertation Hours PSY 9000 Dissertation/research	21	Dissertation Hours PSY 9000 Dissertation/research	21
Cognitive Science Core PSY 8703 Advanced Cognitive Science <i>PSY 8713 Issues and Methods in Cog Psy</i>	6	Cognitive Science Core – 6 hours from the following list: PSY 8703 Advanced Cognitive Science PSY 8723 Cognitive Models of Skill PSY 8773 Computational Cog Neuro PSY 8673 Models of Cognition Seminar	6
<i>Cognitive Science Integration</i> <i>PSY 8723 Cognitive Models of Skill</i> <i>PSY 8773 Distr Rep in Cognition</i>	6		
Cognitive Psychology <i>Integration</i> - 6 hours from following list: PSY 8743 Perception and Attention PSY 8753 Advanced Memory PSY 8763 Expertise and Skill Acquisition	6	Cognitive Psychology Core - 12 hours from following list: PSY 8743 Perception and Attention PSY 8753 Advanced Memory PSY 8763 Expertise and Skill Acquisition PSY 8653 Appl Cog Read Seminar PSY 8643 Psycholinguistics	12

<i>Advanced Graduate Seminars</i> <i>PSY 8653 Appl Cog Reading Seminar</i>	6	PSY 8663 Individual Differences in Cognition	
Research & Professional Skills: PSY 8683 Cognitive Science Research Skills PSY 8693 Advanced Cognitive Science Research Skills PSY 8783 Cognitive Science Professional Skills PSY 8793 Advanced Cognitive Science Professional Skills	12	Research & Professional Skills – 9 hours from following list: PSY 8683 Cognitive Science Research Skills PSY 8693 Advanced Cognitive Science Research Skills PSY 8783 Cognitive Science Professional Skills PSY 8793 Advanced Cognitive Science Professional Skills	9
Cognitive Science Seminar PSY 8731 Applied Cognitive Science Research Seminar	5	Cognitive Science Seminar PSY 8731 Applied Cognitive Science Research Seminar	8
Cognitive concentration hours:	72	Cognitive concentration hours:	66
Clinical Concentration Courses		Clinical Concentration Courses	
Research Methods and Quantitative Core PSY 8214 Quant. Methods in Psych II PSY 8803 Advanced Quant. Methods PSY 8513 Psychological Research Method	10	Research Methods and Quantitative Core PSY 8214 Quant. Methods in Psych II PSY 8803 Advanced Quant. Methods PSY 8513 Psychological Research Method	10
Dissertation Hours PSY 9000 Dissertation/research	21	Dissertation Hours PSY 9000 Dissertation/research	21
PSY 8713 Issues and Methods in Cog Psy	3	PSY 8713 Issues and Methods in Cog Psy	3
PSY 8313 Developmental Psychology	3	PSY 8313 Developmental Psychology	3
PSY 8613 Advanced Social Psychology	3	PSY 8613 Advanced Social Psychology	3
PSY 8233. Ethics and Professional Issues in Clinical Psychology.	3	PSY 8233. Ethics and Professional Issues in Clinical Psychology.	3
EPY 8113 History and Systems of Psychology	3	EPY 8113 History and Systems of Psychology	3
COE 8073 Multicultural Foundations in Counseling	3	COE 8073 Multicultural Foundations in Counseling	3
PSY 9730 Doctoral Internship in Applied Psychology	3	PSY 9730 Doctoral Internship in Applied Psychology	3
Clinical concentration hours:	52	Clinical concentration hours:	52

3. Justification and Student Learning Outcomes

For the cognitive science concentration, we are adjusting the curriculum to accomplish two goals. First, there has been a trend among cognitive doctoral programs to reduce the required course load for students in order to allow them more time for research training and publication opportunities in their research lab. In a recent comparison to top cognitive science doctoral programs including Purdue, University of Colorado at Boulder, University of Pittsburgh, Michigan State University, and Ohio State University, the mean number of content courses in the doctoral curriculum was 8 with a range of 6-10 with most of the programs also offering 1-3 skills/professional development courses. We distinguished between content courses and professional development/skills courses. In our current curriculum, we have 11 content courses and 4 skills/professional development courses. In the revised curriculum, we have 9 content courses and 3 skills courses. In addition, in a recent survey of our graduates in the past five years, the skills courses we taught were among the most highly rated in terms of utility in their current positions. There was also agreement from these graduates that having more time to focus on research training and publications earlier in their careers would have been helpful.

The second goal for the cognitive science concentration was to create a bit more flexibility in the structure of the curriculum to accommodate the specializations of our faculty as we hire additional faculty in this area. We collapsed a few of the categories in the curriculum while maintaining training in both basic empirical and theoretical knowledge (Cognitive Psychology Core) as well as a focus on the use of computational models in understanding the brain and cognition (Cognitive Science Core). The inclusion of the new Models of Cognition Seminar will also allow us to offer training in select topics based on the specialty of the instructor. Finally, the general Psychological Research Methods course was dropped because many of the relevant topics on experimental design are covered in courses such as Issues and Methods in Cognitive Psychology as well as our research skills courses. The broader Psychological Research Methods course includes additional topics that are valuable within the clinical concentration and it remains in that curriculum.

There is no change to the student learning outcomes for our program. They remain as follows:

- Students will understand major theories and models in psychology.
- Students will understand and apply research methods in psychology.
- Students will demonstrate the ability to disseminate research findings.

Required Question Responses

1. Will this program change meet local, state, regional, and national educational and cultural needs? If so, please describe.

There is a clear need for more cognitive scientists. Cognitive science doctoral graduates are employed in both academic and non-academic positions. Non-academic positions include those in manufacturing (e.g., General Mills and Proctor & Gamble have cognitive science consultants in product design), computer software design (e.g., IBM employs cognitive scientists as usability analysts), human factors and ergonomics (e.g., Boeing uses cognitive scientists as consultants), marketing (e.g., one of our graduates is director of web analytics for American Girl), and education (e.g., companies such as Carnegie Learning employ cognitive scientists to design curricula and intelligent tutoring systems).

As an example of the demand for cognitive scientists both regionally and nationally, a recent search on popular job websites found over 300 hits for ads that included “cognitive science” as a keyword including companies such as Panasonic, AT&T, Hitachi, Nuance, AutoTrader, Amazon, Bloomberg, Rosetta Stone, Blizzard, Pearson, Walmart, and Google. At least 40 of these positions were in the southeast region.

The proposed modifications to our curriculum are designed to provide our students with the skills and knowledge they will need to succeed in our doctoral program as well as in their research career. Therefore, these modifications will help to meet local, regional, and national needs.

2. Will this program change result in duplication in the System? If so, please describe.

No. Mississippi State’s cognitive science concentration is the only cognitive science Ph.D. program in the southeast region much less within the state. In addition, none of the courses being proposed are being taught at Mississippi State at this time.

3. Will this program change/advance student diversity within the discipline? If so, please describe.

Many of our students come from minority groups or are international students. The changes in our curriculum will provide our students with the skills and knowledge they will need to succeed in our doctoral program as

well as in their research career. By better preparing our students, we expect that more of them will advance in the field and we expect that a greater proportion will be successful in completing the program.

4. Will this program change result in an increase in the potential placement of graduates in MS, the Southeast, and the U.S.? If so, please describe.

Yes. As these modifications are designed to streamline the program and increase the rate of student-authored publications, they will lead to increased placement of our students.

5. Will this program change result in an increase in the potential salaries of graduates in MS, the Southeast, and the U.S.? If so, please describe.

Yes. Students emerging from graduate training with the technical skills and theoretical knowledge provided by our program, along with a number of first-author publications, will advance more quickly in their career and salary.

4. Support

A letter of support from the psychology department graduate curriculum committee is attached.

5. Proposed 4-Letter Abbreviation

No change to the 4-letter abbreviation is needed.

6. Effective Date

8/16/21 (Fall 2021 Semester)



MISSISSIPPI STATE
UNIVERSITY™

Department of Psychology

Magruder Hall
P.O. Box 6161
255 Lee Boulevard
Mississippi State, MS 39762
Phone: 662-325-3202
FAX: 662-325-7212

March 18, 2021

UCCC and Reviewers

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PSY 8773 Computational Cognitive Neuroscience

The members of the Psychology Department's Graduate Committee have reviewed and approved these proposals.

Respectfully,

A handwritten signature in black ink, appearing to read 'Kevin J. Armstrong'.

Kevin J. Armstrong, Ph.D.
Associate Professor
Graduate Coordinator, Psychology Department

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Jarrod Moss, Ph.D.
Associate Professor
Graduate Committee Member

A handwritten signature in black ink, appearing to read 'Michael R. Nadorff'.

Michael R. Nadorff, Ph.D.
Associate Professor
Graduate Committee Member

APPROVAL FORM FOR
DEGREE PROGRAMS

MISSISSIPPI STATE UNIVERSITY

NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the *Guide and Format for Curriculum Proposals* published by the UCCC. Both cover sheet and proposal should be submitted to UCCC Mail Stop 9702 (281 Garner Hall), Phone: 325-9410.

College: BCoE

Department: Industrial and Systems Engineering

Contact Person: Dr. Linkan Bian

Mail Stop: 9542

E-mail: bian@ise.msstate.edu

Nature of Change: Modification

Date Initiated: 07/09/2021

Effective Date: 01/01/2022

Current or New Degree Program Name: Master of Science in Industrial and Systems Engineering

Major: Industrial and Systems Engineering

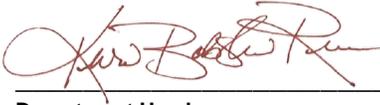
Concentration:

1. Human Factors and Ergonomics
2. Industrial Systems
3. Operations Research
4. Management Systems Engineering
5. Manufacturing Systems

Summary of Proposed Changes:

1. For the Manufacturing Systems concentration, we propose to remove the degree requirement of "B.S. in engineering from an ABET-accredited program or permission from the Manufacturing Systems Committee" and add the prerequisite foundational course requirements of "**MA 1713, 1723, 2733, 2743 (Calculus I, II, III, IV)**".
2. For the Management Systems Engineering concentration, we propose to remove the degree requirement of "B.S. in engineering from an ABET-accredited program or permission from the Management Systems Engineering Committee" and add the prerequisite foundational course requirements of "**MA 1713, 1723, 2733, 2743 (Calculus I, II, III, IV)**".

Approved:



Department Head

Date:

7/9/2021

8/17/2021

Chair, College or School Curriculum Committee

Dean of College or School

Chair, University Committee on Courses and Curricula

Chair, Graduate Council(if applicable)

Chair, Deans Council



July 9, 2021

University Committee on Courses and Curricula
Mailstop: 9702
Mississippi State, MS 39762

Dear UCCC,

The Industrial and Systems Engineering (ISE) department discussed the proposal for the following changes of the M.S. degree program.

1. For the Manufacturing Systems concentration, we propose to remove the degree requirement of “B.S. in engineering from an ABET-accredited program or permission from the Manufacturing Systems Committee” and add the foundational course requirements of “**MA 1713, 1723, 2733, 2743 (Calculus I, II, III, IV)**”.
2. For the Management Systems Engineering concentration, we propose to remove the degree requirement of “B.S. in engineering from an ABET-accredited program or permission from the Management Systems Engineering Committee” and add the foundational course requirements of “**MA 1713, 1723, 2733, 2743 (Calculus I, II, III, IV)**”.

These changes will allow the ISE M.S. program to admit students, who do not have undergraduate engineering degrees from ABET-accredited programs to these two concentrations. After some discussion, we put this proposal to the entire ISE faculty for a vote. The faculty members are unanimously in favor of making these changes.

Sincerely,

**Linkan
Bian**

Digitally signed by
Linkan Bian
Date: 2021.07.09
11:55:48 -05'00'

Linkan Bian, Ph.D.
Thomas B. & Terri L. Nusz Professor
Associate Professor and Graduate Coordinator
Industrial and Systems Engineering



Approved:

Linkan Bian, Ph.D.

Reuben Burch, Ph.D.

Raed Jaradat, Ph.D.

Junfeng Ma, Ph.D.

Mohammad Marufuzzaman, Ph.D.

Nazanin Morshedlou, Ph.D.

Brian Smith, Ph.D.

Lesley Strawderman, Ph.D.

Wenmeng Tian, Ph.D.

Haifeng Wang, Ph.D.

Signature and Date:

Linkan Bian Digitally signed by Linkan Bian
Date: 2021.07.09 11:56:08
-05'00'

Reuben F. Burch V Digitally signed by Reuben F. Burch V
Date: 2021.07.12 15:10:00
-05'00'

Linkan Bian Digitally signed by Linkan Bian
Date: 2021.07.14 13:00:22
-05'00'

LB signed with permission

Junfeng Ma Digitally signed by Junfeng Ma
Date: 2021.07.09 13:43:11 -05'00'

Nazanin Morshedlou Digitally signed by Nazanin Morshedlou
Date: 2021.07.09 14:02:59 -05'00'

Brian K. Smith, PhD, CPEM Digitally signed by Brian K. Smith, PhD, CPEM
Date: 2021.07.09 14:21:18
-05'00'

Lesley Strawderman Digitally signed by Lesley Strawderman
Date: 2021.07.13 09:59:44 -05'00'

Wenmeng Tian Digitally signed by Wenmeng Tian
Date: 2021.07.12 11:44:14 -05'00'

Haifeng Wang Digitally signed by Haifeng Wang
Date: 2021.07.12 15:49:34 -05'00'

GRADUATE DEGREE MODIFICATION OUTLINE FORM

Use the chart below to make modifications to an existing Graduate Degree. All deleted courses and information should be shown in *italics* and all new courses and information in **bold**. Please include the course prefix, number, and title in both columns. Expand rows as needed.

<p>Old degree catalog description:</p> <p>Master of Science in Industrial and Systems Engineering with Management Systems Engineering Concentration (MGTS) - Thesis</p> <p>Prerequisites (foundational courses) are:</p> <ul style="list-style-type: none"> • <i>B.S. in engineering from an ABET-accredited program or permission from the MSE Technical Committee</i> • IE 3913 • IE 4613/6613 <table border="1"> <tbody> <tr> <td>IE 6513</td> <td>Engineering Administration</td> <td>3</td> </tr> <tr> <td>IE 6533</td> <td>Project Management</td> <td>3</td> </tr> <tr> <td>IE 6573</td> <td>Process Improvement Engineering</td> <td>3</td> </tr> <tr> <td>IE 8583</td> <td>Enterprise Systems Engineering</td> <td>3</td> </tr> <tr> <td>IE 8913</td> <td>Engineering Economy II</td> <td>3</td> </tr> <tr> <td>IE 8000</td> <td>Thesis Research/ Thesis in Industrial Engineering</td> <td>6</td> </tr> <tr> <td colspan="2">At least two non-MSE ISE courses</td> <td>6</td> </tr> <tr> <td colspan="2">Course to be selected by the student along with academic advisor and graduate program committee</td> <td>3</td> </tr> <tr> <td colspan="2">Total Hours</td> <td>30</td> </tr> </tbody> </table> <p>A thesis and an oral comprehensive examination in defense of the thesis are required.</p> <p>Additional requirements are:</p> <ol style="list-style-type: none"> 1. A minimum of 12 hours at the 8000-level is required. 2. No ISE graduate student may list ST 8114 or IE 6613 on his/her graduate program 3. No program can contain more than 15 hours of courses that are required in the bachelor's degree curriculum 4. No program can contain more than 6 hours of Directed Individual Study (IE 7000). <p>The thesis-option Master of Science in Industrial Engineering requires at least 24 credit hours of coursework above the baccalaureate degree. IE 9000 does not apply to M.S. students.</p> <p>Master of Science in Industrial and Systems</p>	IE 6513	Engineering Administration	3	IE 6533	Project Management	3	IE 6573	Process Improvement Engineering	3	IE 8583	Enterprise Systems Engineering	3	IE 8913	Engineering Economy II	3	IE 8000	Thesis Research/ Thesis in Industrial Engineering	6	At least two non-MSE ISE courses		6	Course to be selected by the student along with academic advisor and graduate program committee		3	Total Hours		30	<p>Old degree catalog description:</p> <p>Master of Science in Industrial and Systems Engineering with Management Systems Engineering Concentration (MGTS) - Thesis</p> <p>Prerequisites (foundational courses) are:</p> <ul style="list-style-type: none"> • MA 1713, 1723, 2733, 2743 (Calculus I, II, III, IV) • IE 3913 • IE 4613/6613 <table border="1"> <tbody> <tr> <td>IE 6513</td> <td>Engineering Administration</td> <td>3</td> </tr> <tr> <td>IE 6533</td> <td>Project Management</td> <td>3</td> </tr> <tr> <td>IE 6573</td> <td>Process Improvement Engineering</td> <td>3</td> </tr> <tr> <td>IE 8583</td> <td>Enterprise Systems Engineering</td> <td>3</td> </tr> <tr> <td>IE 8913</td> <td>Engineering Economy II</td> <td>3</td> </tr> <tr> <td>IE 8000</td> <td>Thesis Research/ Thesis in Industrial Engineering</td> <td>6</td> </tr> <tr> <td colspan="2">At least two non-MSE ISE courses</td> <td>6</td> </tr> <tr> <td colspan="2">Course to be selected by the student along with academic advisor and graduate program committee</td> <td>3</td> </tr> <tr> <td colspan="2">Total Hours</td> <td>30</td> </tr> </tbody> </table> <p>A thesis and an oral comprehensive examination in defense of the thesis are required.</p> <p>Additional requirements are:</p> <ol style="list-style-type: none"> 5. A minimum of 12 hours at the 8000-level is required. 6. No ISE graduate student may list ST 8114 or IE 6613 on his/her graduate program 7. No program can contain more than 15 hours of courses that are required in the bachelor's degree curriculum 8. No program can contain more than 6 hours of Directed Individual Study (IE 7000). <p>The thesis-option Master of Science in Industrial Engineering requires at least 24 credit hours of coursework above the baccalaureate degree. IE 9000 does not apply to M.S. students.</p>	IE 6513	Engineering Administration	3	IE 6533	Project Management	3	IE 6573	Process Improvement Engineering	3	IE 8583	Enterprise Systems Engineering	3	IE 8913	Engineering Economy II	3	IE 8000	Thesis Research/ Thesis in Industrial Engineering	6	At least two non-MSE ISE courses		6	Course to be selected by the student along with academic advisor and graduate program committee		3	Total Hours		30
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Engineering with Management Systems Engineering Concentration (MGTS) - Non-Thesis

Prerequisites (foundational courses) are:

- *B.S. in engineering from an ABET-accredited program or permission from the MSE Technical Committee*
- IE 3913
- IE 4613/6613

IE 6513	Engineering Administration	3
IE 6533	Project Management	3
IE 6573	Process Improvement Engineering	3
IE 8583	Enterprise Systems Engineering	3
IE 8913	Engineering Economy II	3
At least two non-MSE ISE courses		6
Other courses to be selected by the student along with the academic advisor and graduate program committee		9
Total Hours		30

A written and oral comprehensive final exam on the coursework. At least 15 hours for the M.S. non-thesis degree must be from 8000-level courses or above. The specific courses required depend upon the student's area of concentration. IE 8000 Research/Thesis does not apply to non-thesis students.

Additional requirements are:

1. No ISE graduate student may list [ST 8114](#) or [IE 6613](#) on his/her graduate program
2. No program can contain more than 15 hours of courses that are required in the bachelor's degree curriculum
3. No program can contain more than 6 hours of Directed Individual Study ([IE 7000](#)).

The non-thesis Master of Science requires at least 30 credit hours of coursework above the baccalaureate degree. IE 9000 does not apply to M.S. students.

Master of Science in Industrial and Systems Engineering with Manufacturing Systems Concentration (MFGS) - Thesis

Prerequisites (foundational courses) are:

- *B.S. in engineering from an ABET-accredited program or permission from the Manufacturing Systems Technical Committee*
- Computer programming proficiency
- IE 4333/6333
- IE 4613/6613

Master of Science in Industrial and Systems Engineering with Management Systems Engineering Concentration (MGTS) - Non-Thesis

Prerequisites (foundational courses) are:

- **MA 1713, 1723, 2733, 2743 (Calculus I, II, III, IV)**
- IE 3913
- IE 4613/6613

IE 6513	Engineering Administration	3
IE 6533	Project Management	3
IE 6573	Process Improvement Engineering	3
IE 8583	Enterprise Systems Engineering	3
IE 8913	Engineering Economy II	3
At least two non-MSE ISE courses		6
Other courses to be selected by the student along with the academic advisor and graduate program committee		9
Total Hours		30

A written and oral comprehensive final exam on the coursework. At least 15 hours for the M.S. non-thesis degree must be from 8000-level courses or above. The specific courses required depend upon the student's area of concentration. IE 8000 Research/Thesis does not apply to non-thesis students.

Additional requirements are:

4. No ISE graduate student may list [ST 8114](#) or [IE 6613](#) on his/her graduate program
5. No program can contain more than 15 hours of courses that are required in the bachelor's degree curriculum
6. No program can contain more than 6 hours of Directed Individual Study ([IE 7000](#)).

The non-thesis Master of Science requires at least 30 credit hours of coursework above the baccalaureate degree. IE 9000 does not apply to M.S. students.

Master of Science in Industrial and Systems Engineering with Manufacturing Systems Concentration (MFGS) - Thesis

Prerequisites (foundational courses) are:

- **MA 1713, 1723, 2733, 2743 (Calculus I, II, III, IV)**
- Computer programming proficiency

IE 6653	Industrial Quality Control	3
IE 8333	Production Control Systems II	3
IE 8000	Thesis Research/ Thesis in Industrial Engineering	6
At least two Manufacturing Systems ISE courses		6
At least two non-Manufacturing Systems ISE courses		6
Course to be selected by the student along with the academic advisor and graduate program committee		3
Total Hours		27

A thesis and an oral comprehensive examination in defense of the thesis are required.

Additional requirements are:

1. A minimum of 12 hours coursework must be at the 8000-level or higher.
2. No ISE graduate student may list [ST 8114](#) or [IE 6613](#) on his/her graduate program
3. No program can contain more than 15 hours of courses that are required in the bachelor's degree curriculum
4. No program can contain more than 6 hours of Directed Individual Study ([IE 7000](#)).

The thesis-option Master of Science in Industrial Engineering requires at least 24 credit hours of coursework above the baccalaureate degree. IE 9000 does not apply to M.S. students.

Master of Science in Industrial and Systems Engineering with Manufacturing Systems Concentration (MFGS) - Non-Thesis
Prerequisites (foundational courses) are:

- *B.S. in engineering from an ABET-accredited program or permission from the Manufacturing Systems Technical Committee*
- Computer programming proficiency
- IE 4333/6333
- IE 4613/6613

IE 6653	Industrial Quality Control	3
IE 8333	Production Control Systems II	3
At least two Manufacturing Systems ISE courses		6
At least two non-Manufacturing Systems		6

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IE 6653	Industrial Quality Control	3
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At least two Manufacturing Systems ISE courses		6
At least two non-Manufacturing Systems ISE courses		6
Course to be selected by the student along with the academic advisor and graduate program committee		3
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- **MA 1713, 1723, 2733, 2743 (Calculus I, II, III, IV)**
- Computer programming proficiency
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IE 6653	Industrial Quality Control	3
IE 8333	Production Control Systems II	3
At least two Manufacturing Systems ISE courses		6
At least two non-Manufacturing Systems		6

<p>ISE courses</p> <p>Other courses to be selected by the student along with the academic advisor and graduate program committee 9</p> <p>Total Hours 27</p> <p>A written and oral comprehensive final exam on the coursework. At least 15 hours for the M.S. non-thesis degree must be from 8000-level courses or above. The specific courses required depend upon the student's area of concentration. IE 8000 Research/Thesis does not apply to non-thesis students. IE 9000 does not apply to M.S. students.</p> <p>Additional requirements are:</p> <ol style="list-style-type: none"> 1. No ISE graduate student may list ST 8114 or IE 6613 on his/her graduate program 2. No program can contain more than 15 hours of courses that are required in the bachelor's degree curriculum 3. No program can contain more than 6 hours of Directed Individual Study (IE 7000). <p>The non-thesis Master of Science requires at least 30 credit hours of coursework above the baccalaureate degree. IE 9000 does not apply to M.S. students.</p>		<p>ISE courses</p> <p>Other courses to be selected by the student along with the academic advisor and graduate program committee 9</p> <p>Total Hours 27</p> <p>A written and oral comprehensive final exam on the coursework. At least 15 hours for the M.S. non-thesis degree must be from 8000-level courses or above. The specific courses required depend upon the student's area of concentration. IE 8000 Research/Thesis does not apply to non-thesis students. IE 9000 does not apply to M.S. students.</p> <p>Additional requirements are:</p> <ol style="list-style-type: none"> 4. No ISE graduate student may list ST 8114 or IE 6613 on his/her graduate program 5. No program can contain more than 15 hours of courses that are required in the bachelor's degree curriculum 6. No program can contain more than 6 hours of Directed Individual Study (IE 7000). <p>The non-thesis Master of Science requires at least 30 credit hours of coursework above the baccalaureate degree. IE 9000 does not apply to M.S. students.</p>	
CURRENT CURRICULUM OUTLINE	Required Hours	PROPOSED CURRICULUM OUTLINE	Required Hours
See above section – Concentration Description and Curriculum Outline/hours are now combined in the Graduate Catalog; therefore, outline is not repeated here.		See above section – Concentration Description and Curriculum Outline/hours are now combined in the Graduate Catalog; therefore, outline is not repeated here.	

Justification of the proposed changes: These changes will allow the ISE M.S. program to admit students, who do not have undergraduate engineering degrees from ABET-accredited programs to these two concentrations.