MISSISSIPPI STATE UNIVERSITY™

UNIVERSITY COMMITTEE ON COURSES AND CURRICULA

A MEMORANDUM

DATE: November 27, 2018

TO: UCCC Members

FROM: Dr. Dana Pomykal Franz, Chair

SUBJECT: December 6, 2018 Meeting

Enclosed are the minutes from the meeting on November 16, 2018 and the agenda and proposals for the meeting on **Thursday, December 6, 2018 beginning at 1:30 p.m.** The meeting will be held in **Room 324 of the Student Union**. Please contact the UCCC office if you are unable to attend.

Thank you.

Enclosures: November 16, 2018 Meeting Minutes
Course/Curriculum Proposals

Post Office Box 5268 • Starkville, MS 39762 • Office: (662) 325-9410 • Fax: (662) 325-1846

AGENDA
UNIVERSITY COMMITTEE ON COURSES AND CURRICULA
December 6, 2018

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

AGRICULTURE AND LIFE SCIENCES

+Online/Distance	PSS 2543	Precision Agriculture I

ARCHITECTURE, ART, & DESIGN

Modification	BCS 3213	Mechanical and Electrical Systems

ARTS AND SCIENCES

Addition	SO 8443	Seminar in Rural Sociology (tabled at Nov. 16th UCCC meeting)

BUSINESS

+Online/Distance	BL 4263	Environmental Law

ENGINEERING

Addition +Gulf Coast	ECE 1013	Introduction to ECE Design I
Addition +Gulf Coast	ECE 1022	Introduction to ECE Design II
Addition +Gulf Coast	GE 1711	Project Lead The Way (PLTW) Intro to Engineering Design (IED)
Addition +Gulf Coast	GE 1721	Project Lead The Way (PLTW) Principles of Engineering (PoE)
Addition +Gulf Coast	GE 1731	Project Lead The Way (PLTW) Engineering Design and Development (EDD)
Addition +Gulf Coast	GE 1741	Project Lead The Way (PLTW) Elective

VETERINARY SCIENCE

Addition	CVM 5991	Preparations for Study Abroad

4. Degree proposals by college/school

ENGINEERING

Modification	BS	Aerospace Engineering
Modification	BS	Computer Science
Modification	BS	Software Engineering
Modification	MS	Computer Science (Starkville and Distance)
Modification	MS	Cyber Security & Operations (Starkville and Distance)
Modification	Ph.D.	Computer Science (Starkville and Distance)

University Committee on Courses and Curricula
Mississippi State University
November 16, 2018

Members Present:	Amy Adkerson, Tracey Baham, Randy Campbell, Russell Carr, Cody Coyne, Amy Crumpton, Dana Franz, Charles Freeman, Seamus Freyne, Joshua Hartley, Kevin Hunt, Qingmin Meng, Rob Moore, Emily Owen, Prem Parajuli, Tommy Parker, Andy Perkins, Tommy Phillips, Matthew Priddy, Kathy Sherman-Morris, Brad Trinkle, Jacob Tschume, Jenny Turner, Erica Waldman, Jeff Winger, Robert Wolverton, Chien Yu, Matthew Zimmerman
Excused:	John Buol, Padmanava Dash, Trey Howell, Pat Matthes, Marian Swindell
Absent:	Arman Borazjani, Darrell Sparks
Guests:	T. J. Bradford, Tracy Craven, Joe Emerson, Connor Ferguson, Fumiko Joo, Sara Lee, Lynda Moore, Aswathy Rai, Jessica Wells

Franz called the meeting to order at 1:30 p.m. on Friday, November 16, 2018 at 1:30 p.m. in Room 324 of the Student Union. Franz announced a committee report from the Faculty Senate made a recommendation faculty members be allowed to refuse video or audio taping of lectures. Franz indicated that currently the Provost Office encourages faculty members to allow students to video or audio tape a lecture.

Hunt moved to approve the minutes from the October 19, 2018 UCCC meeting. Trinkle seconded the motion. Sherman-Morris moved to amend the minutes to reflect that the Faculty Senate is working on a "recommendation" on the recording of lectures instead of a "policy" on the recording of lectures. Coyne seconded the motion. The motion to amend the minutes was approved unanimously.

Parajuli moved to approve the additions of FLC 3203 Survey of Chinese Literature and FLC 3303 Survey of Chinese Culture. Tschume seconded the motion. Dr. Fumiko Joo appeared in support of the proposals. Committee members discussed that there are no prerequisites for the course, questioned requiring students print course PDFs, and discussed how faculty members grade participation. Franz asked Sherman-Morris to ask the Faculty Senate for feedback on how participation is graded. The motion to approve the addition of FLC 3203 and FLC 3303 was approved unanimously.

Parajuli moved to approve the addition of FLJ 3163 Japanese VI, FLJ 3203 Survey of Japanese Literature, and FLJ 3303 Survey of Japanese Culture. Hunt seconded the motion. The motion to approve the addition of FLJ 3163, FLJ 3203, and FLJ 3303 was approved unanimously.

Parajuli moved to approve the addition of SO 8443 Seminar in Rural Sociology. Crumpton seconded the motion. The subcommittee that reviewed the proposal and committee members questioned whether a

three hour course seminar should be repeated five times for credit as requested and had concerns about how the seminar is going to be different each time. No one appeared in support of the proposal. Carr moved to table the proposal, so a faculty member can appear at the next UCCC meeting to address the UCCC's concerns. Coyne seconded the motion. The motion to table the addition of SO 8443 was approved unanimously.

Parajuli moved to approve the modification of the MS in Chemistry. Tschume seconded the motion. The subcommittee that reviewed the proposal recommended approval. The motion to approve the modification of the MS in Chemistry was approved unanimously.

Perkins moved to approve the modification and addition of distance education to EP 3183 Exercise Psychology. Yu seconded the motion. The subcommittee that reviewed the proposal was concerned the attendance policy in the syllabus does not reference AOP 12.09 and does not discuss excused and unexcused absences as outlined by university policy; the online version section of the syllabus states a student will be penalized 10 points if they do not complete an assignment but does not indicate what happens if part of the assignment is completed; on page 5 of the revised syllabus under Online Discussion, the last sentence of that paragraph should indicate that each post will be worth 10 points towards the final grade in order to match the points assigned under Points for Student Activities. Tschume moved to pass the motion to approve the modification and addition of distance education to EP 3183 contingent upon the above concerns being addressed. Crumpton seconded the motion. The motion to pass contingent was approved unanimously.

Perkins moved to approve the addition of PE 1201 Adapted Physical Activity, the modification of PE 3163 Sport Psychology, and the addition of distance education to PE 3163. Crumpton seconded the motion. The subcommittee that reviewed the proposals was concerned the attendance policies in the syllabi did not reference AOP 12.09; for PE 1201, the catalog description describes the course as a laboratory, but the Method of Instruction selected is lecture/lab, and in the syllabus under heading Credit Hours, it should be "One (1) semester hour;" for PE 3163, in the syllabus under the Topics Covered in the Course, the contact hours for the subtopics for K and Q are not correct based on the main topic contact hours. Tschume moved to pass the motion to approve the addition of PE 1201, the modification of PE 3163, and the addition of distance education to PE3163 contingent upon the above concerns being addressed. Trinkle seconded the motion. The motion to pass contingent was approved unanimously.

Carr moved to approve the addition of distance education to ABE 2543 Precision Agriculture I. Crumpton seconded the motion. The subcommittee that reviewed the proposal noted that the initiator answered the distance education questions on the proposal very well but did not include that information in the syllabus, so the information would be available to students; in the syllabus under the subheading of Exams, it indicates the exams will be worth 300 points but when the three exams are listed separately, the possible exam points do not equal 300 points; in the syllabus under the subheading of Lab Exercises, it indicates the Labs will be worth 300 points with each lab worth 50 points, but there are 10 different labs listed. Parajuli moved to pass the motion to approve the addition of distance education to ABE 2543 contingent upon the above concerns being addressed. Hunt seconded the motion. The motion to pass the motion to approve the addition of distance education to ABE 2543 contingent was approved unanimously.

Carr moved to approve the addition of BCH 4443/6443 Introduction to Public Health and the addition of distance education to BCH 4503/6503 Scientific Communication Skills. Crumpton seconded the motion.

The subcommittee that reviewed the proposals noted for BCH 4443/6443 the undergraduate grading scale overlaps (for example a 90 could be an A or a B, an 80 could be a B or a C, etc.), the graduate grading scale overlaps (for example a 93 could be an A or a B), the graduate students will have two writing assignments but the syllabus does not indicate how the assignments will be included in the grading scale, and it is not clear how often the game Pandemic will be played and when it will be played; for BCH 4503/6503, in the Campus 5 syllabus, it mentions there will be three exams but in the table under Grading on page 3 of the syllabus, the exams are not listed, and it is not clear how the requirements for the graduate students will be different from the undergraduate students. Hunt moved to pass the motion to approve the addition of BCH 4443/6443 and the addition of distance education to BCH 4503/6503 contingent upon the above concerns being addressed. Parajuli seconded the motion. The motion to pass contingent was approved unanimously.

Carr moved to approve the addition of distance education to FDM 2333 Intro to Buying and Management. Trinkle seconded the motion. The subcommittee that reviewed the proposal noted Campus 5 students have three attempts to take each exam and "[t]he highest score among the three attempts will be recorded for the grade." In the syllabus Campus 1 students are not given the three attempts provision, so there appears to be an equivalency issue between the Campus 1 and Campus 5 offerings. Crumpton moved to pass motion to approve the addition of distance to FDM 2333 contingent upon the above concern being addressed. Hunt seconded the motion. The motion to pass contingent was approved unanimously.

Carr moved to approve the addition of distance education to FDM 4693/6693 Digital Fashion Retailing. Parajuli seconded the motion. The subcommittee that reviewed the proposal recommended approval. The motion to approve the addition of distance education to FDM 4693/6693 was approved unanimously.

Carr moved to approve the addition of distance education to PO 3313 Commercial Poultry Production. Parajuli seconded the motion. The subcommittee that reviewed the proposal recommended approval. The motion to approve the addition of distance education to PO 3313 was approved unanimously.

Carr moved to approve the addition of PSS 8643 Principles of Spray Application and Technology. Parajuli seconded the motion. The subcommittee that reviewed the proposal recommended approval. The motion to approve the addition of PSS 8643 was approved unanimously.

Campbell moved to approve the addition of CSE 4173/6173 Cryptography, the addition of distance education to CSE 4173/6173 Cryptography, the modification of CSE 4383/6383 Network Security, the modification of CSE 4763/6763 Ethical and Legal Issues in Computing, and the addition of distance education to CSE 4763/6763. Moore seconded the motion. The subcommittee that reviewed the proposals noted for CSE 4173 the contact hours add up to 44 instead of 45, the headings on the syllabus for the grading refer to the special topic course numbers, and the attendance policy should have a link to AOP 12.09; for CSE 4383/6383 the contact hours add up to 42 instead of 45 and the attendance policy should have a link to AOP 12.09; for CSE 4763/6763 the attendance policy should have a link to AOP 12.09, the graduate student requirements need clarification, and the grading for graduate students needs to more specific. Carr moved to pass the motion to approve the addition of CSE 4173/6173, the addition of distance education to CSE 4173/6173, the modification of CSE 4383/6383, the modification of CSE 4763/6763, and the addition of distance education to CSE 4763/6763 contingent upon the above

concerns being addressed. Trinkle seconded the motion. The motion to pass contingent was unanimously approved.

Campbell moved to approve the addition of the BS in Cybersecurity. Moore seconded the motion. The subcommittee that reviewed the proposal reported the program outline in the UCCC proposal added up to 125 while the program outline in the Appendix 8 added up to 128 with the difference being CSE 2813 Discrete Structures not being included in the UCCC proposal. Another committee member pointed out MA 4143 Graph Theory had been included in the UCCC proposal under electives but was not included in the Appendix 8. Hunt moved to pass the motion to approve the addition of the BS in Cybersecurity contingent upon the above concerns being addressed. Crumpton seconded the motion. The motion to pass contingent was unanimously approved.

Hunt moved to adjourn the meeting. Crumpton seconded the motion. The motion to adjourn was unanimously approved.

The meeting was approved at 2:58 p.m.

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: Bagley College of Engineering **Department:** Aerospace Engineering

Contact Person: Machaunda Bush **Mail Stop:** 9549 **E-mail:** mb2@msstate.edu
Nature of Change: Curriculum Change **Date Initiated:** 10/2/2018 **Effective Date:** 8/1/2019
Current Degree Program Name: Aerospace Engineering

Major: Aerospace Engineering **Concentration:** Aeronautics or Astronautics

New Degree Program Name:

Major: **Concentration:**

Summary of Proposed Changes:

This proposal aims to modify the degree requirements for the Bachelor of Science in Aerospace Engineering by removing an existing course (PH 2233 Physics III) and adding a new course (CSE 1233 Programming with C) to the curriculum

Approved: **Date:**

Department Head
(*Davy Belk*) 26 Oct 18

Chair, College or School Curriculum Committee
(*Andy Perkins*) 11/26/18

Dean of College or School
(*Jason Keith*) 11/26/18

Chair, University Committee on Courses and Curricula
(*Dana Franz*)

Chair, Graduate Council (if applicable)

Chair, Deans Council

1. CATALOG DESCRIPTION

***Current Catalog Description of Degree Program*:**

Department Head: Dr. Davy Belk
Academic Coordinator: Ms. Machaunda Bush
Office: 330 Walker Engineering Building

The Department of Aerospace Engineering at Mississippi State University provides an accredited undergraduate curriculum with the mission of preparing students to enter the workplace as qualified entry-level aerospace engineers or to enter any aerospace engineering graduate program adequately prepared for advanced study. This mission is accomplished by a strong foundation in mathematics and physical and engineering sciences upon which student problem-solving and application skills are developed. The curriculum stresses analytical and communication skills, with particular emphasis placed on engineering design throughout the curriculum. A capstone design experience in the senior year provides the opportunity to integrate design, analytical, and problem-solving skills along with communication skills in a team environment that emulates aerospace engineering practice.

The mission is accomplished by the following educational objectives, which describe the career and professional accomplishments we are preparing our graduates to achieve. Our graduates shall:

1. Demonstrate an understanding of engineering principles and an ability to solve unstructured engineering problems that will allow them to successfully enter into and advance in the engineering profession;
2. Demonstrate an appreciation for lifelong learning and for the value of continuing professional development through continual study of the current literature in the field, participation in graduate education, professional education or continuing education opportunities, attainment of professional licensure, or membership in professional societies;
3. Demonstrate an understanding of professional and ethical responsibilities to the profession, society, and the environment incumbent on an engineering professional;
4. Successfully interact with others of different backgrounds, educations, and cultures;
5. Demonstrate effective communication skills in their profession.

These objectives are accomplished in two different concentrations in the aerospace engineering curriculum, an aeronautics concentration and an astronautics concentration. The concentration in aeronautics focuses on the analysis and design of aircraft and other vehicles that operate primarily within the earth's atmosphere, and the concentration in astronautics focuses on the analysis and design of spacecraft and other vehicles that operate primarily outside the earth's atmosphere. A student in aerospace engineering will choose one of these two concentrations upon choosing the aerospace engineering major.

The aerospace engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

New Catalog Description of Degree Program:

Department Head: Dr. Davy Belk
Academic Coordinator: Ms. Machaunda Bush
Office: 330 Walker Engineering Building

The Department of Aerospace Engineering at Mississippi State University provides an accredited undergraduate curriculum with the mission of preparing students to enter the workplace as qualified entry-level aerospace engineers or to enter any aerospace engineering graduate program adequately prepared for advanced study. This mission is accomplished by a strong foundation in mathematics and physical and engineering sciences upon which student problem-solving and application skills are developed. The curriculum stresses analytical and communication skills, with particular emphasis placed on engineering design throughout the curriculum. A capstone design experience in the senior year provides the opportunity to integrate design, analytical, and problem-solving skills along with communication skills in a team environment that emulates aerospace engineering practice.

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3. Demonstrate an understanding of professional and ethical responsibilities to the profession, society, and the environment incumbent on an engineering professional;
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The aerospace engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

DESCRIPTION OF CHANGES

Currently, PH 2233 is a required elective for aerospace students. It is proposed that PH 2233 be replaced by CSE 1233 in the catalog. In addition, it is proposed that 'Humanities Elective' from the freshman year be exchanged with CSE 1233 from the sophomore year.

***Current Course*:** PH 2233 (Prerequisite: PH 2223). Two hours lecture, one hour recitation, two hours laboratory. Calculus-based course in simple harmonic motion, waves, optics and an introduction to modern physics. Laboratory emphasizes optics and electronics.

New Course: CSE 1233 (Prerequisite: MA 1313 or equivalent). Three hours lecture. Problem-solving methods, algorithm development, debugging and documentation in the C Programming language; applications. (Not recommended to students with credit in CSE 1213 or CSE 1233 or equivalent).

JUSTIFICATION FOR CHANGE:

- Based on feedback from the aerospace industry, our undergraduate students need to know how to program on computers to solve engineering problems and to be able to understand some of the codes that are currently being used in industry and national labs.
- Many of the homework assignments and projects in the [sophomore,] junior and senior years involve computer programing, and it was found that most of the aerospace students lack programing knowledge.

4. CURRICULUM OUTLINE

CURRENT Degree Description	PROPOSED Degree Description
Degree: Bachelor of Science Major: Aerospace Engineering Concentration: Aeronautics, Astronautics	Degree: Bachelor of Science Major: Aerospace Engineering Concentration: Aeronautics, Astronautics
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continuing education opportunities, attainment of professional licensure, or membership in professional societies; 3. Demonstrate an understanding of professional and ethical responsibilities to the profession, society, and the environment incumbent on an engineering professional; 4. Successfully interact with others of different backgrounds, educations, and cultures; 5. Demonstrate effective communication skills in their profession. These objectives are accomplished in two different concentrations in the aerospace engineering curriculum, an aeronautics concentration and an astronautics concentration. The concentration in aeronautics focuses on the analysis and design of aircraft and other vehicles that operate primarily within the earth's atmosphere, and the concentration in astronautics focuses on the analysis and design of spacecraft and other vehicles that operate primarily outside the earth's atmosphere. A student in aerospace engineering will choose one of these two concentrations upon choosing the aerospace engineering major. The aerospace engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.	professional licensure, or membership in professional societies; 3. Demonstrate an understanding of professional and ethical responsibilities to the profession, society, and the environment incumbent on an engineering professional; 4. Successfully interact with others of different backgrounds, educations, and cultures; 5. Demonstrate effective communication skills in their profession. These objectives are accomplished in two different concentrations in the aerospace engineering curriculum, an aeronautics concentration and an astronautics concentration. The concentration in aeronautics focuses on the analysis and design of aircraft and other vehicles that operate primarily within the earth's atmosphere, and the concentration in astronautics focuses on the analysis and design of spacecraft and other vehicles that operate primarily outside the earth's atmosphere. A student in aerospace engineering will choose one of these two concentrations upon choosing the aerospace engineering major. The aerospace engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.
"[Click here and type old concentration description]"	"[Click here and type new concentration description]"

CURRENT CURRICULUM OUTLINE	Required Hours	**PROPOSED CURRICULUM OUTLINE**	Required Hours
English (Ex: EN 1103 English Comp I): EN 1103 or EN 1163 EN 1113 or EN 1173	6	English (Ex: EN 1103 English Comp I): EN 1103 or EN 1163 EN 1113 or EN 1173	6
Fine Arts (General Education): See General Education Courses	3	Fine Arts (General Education): See General Education Courses	3
Natural Sciences (2 labs required from Gen Ed): See Major/Concentration	6-8	Natural Sciences (2 labs required from Gen Ed): See Major/Concentration	6-8
Extra Science (if appropriate)		Extra Science (if appropriate)	
Math (General Education): MA 1313 See Major/Concentration	6-9	Math (General Education): See Major/Concentration	6-9
Humanities (General Education): See General Education Courses	6	Humanities (General Education): See General Education Courses	6

Social/Behavioral Sciences (Gen Ed): See General Education Courses	6	Social/Behavioral Sciences (Gen Ed): See General Education Courses	6
Major Core Courses Math and Basic Science MA 1713 Calculus I MA 1723 Calculus II MA 2733 Calculus III MA 2743 Calculus IV MA 3113 Intro to Linear Algebra MA 3253 Differential Equations I Math/Science Elective[1] CH 1211 Invest in Chemistry CH 1213 Chemistry I PH 2213 Physics I PH 2223 Physics II *PH 2233 Physics III* Engineering Topics ASE 1013 Intro to Aerospace Engineering ASE 2013 Astrodynamics, Propulsion and Structures ASE 2113 Introduction to Aircraft and Spacecraft Performance ASE 3233 Aerospace Structural Analysis I ASE 3243 Aerospace Structural Analysis II ASE 3333 Aerothermodynamics ASE 4113 Aerospace Engineering Lab I ASE 4123 Aerospace Controls ASE 4343 Compressible Aerodynamics ASE 4623 Aerospace Structural Design ASE 4721 Aerospace Engineering Lab II Technical Elective[2] Oral Communication Requirement Satisfied by successful completion of ASE 2013, ASE 4513/ASE 4523 or ASE 4533/ASE 4543, ASE 4623, ASE 4721 and GE 3513. Writing Requirement GE 3513 Technical Writing Computer Literacy Satisfied by successful completion of ASE 1013, ASE 2013, and ASE 2113. [1] The department maintains a list of pre-approved math/science electives on its website. Other courses may be selected upon approval of the department. [2]Technical electives may be selected from	92	Major Core Courses MA 1713 Calculus I MA 1723 Calculus II MA 2733 Calculus III MA 2743 Calculus IV MA 3113 Intro to Linear Algebra MA 3253 Differential Equations I Math/Science Elective CH 1211 Invest in Chemistry CH 1213 Chemistry I PH 2213 Physics I PH 2223 Physics II **CSE 1233 Computer Programming with C** Engineering Topics ASE 1013 Intro to Aerospace Engineering ASE 2013 Astrodynamics, Propulsion and Structures ASE 2113 Introduction to Aircraft and Spacecraft Performance ASE 3233 Aerospace Structural Analysis I ASE 3243 Aerospace Structural Analysis II ASE 3333 Aerothermodynamics ASE 4113 Aerospace Engineering Lab I ASE 4123 Aerospace Controls ASE 4343 Compressible Aerodynamics ASE 4623 Aerospace Structural Design ASE 4721 Aerospace Engineering Lab II Technical Elective[2] Oral Communication Requirement Satisfied by successful completion of ASE 2013, ASE 4513/ASE 4523 or ASE 4533/ASE 4543, ASE 4623, ASE 4721 and GE 3513. Writing Requirement GE 3513 Technical Writing Computer Literacy Satisfied by successful completion of ASE 1013, ASE 2013, and ASE 2113. [1] The department maintains a list of pre-approved math/science electives on its website. Other courses may be selected upon approval of the department. [2]Technical electives may be selected from any of the department's listing of	92

any of the department's listing of Advanced Undergraduate/Graduate Courses, plus EM 4123, EM 4133 and EM 4143. Other courses may be selected upon approval of the department. All required courses in one concentration qualify as technical electives for students in the other concentration.		Advanced Undergraduate/Graduate Courses, plus EM 4123, EM 4133 and EM 4143. Other courses may be selected upon approval of the department. All required courses in one concentration qualify as technical electives for students in the other concentration.	
Concentration Courses Aeronautics ASE 3123 Aircraft Attitude Dynamics ASE 3313 Incompressible Aerodynamics ASE 4413 Aircraft Propulsion ASE 4513 Aircraft Design I ASE 4523 Aircraft Design II Astronautics ASE 3813 Introduction to Orbital Mechanics ASE 3823 Spacecraft Attitude Dynamics ASE 4443 Spacecraft Propulsion ASE 4533 Spacecraft Design I ASE 4543 Spacecraft Design II	15	Concentration Courses Aeronautics ASE 3123 Aircraft Attitude Dynamics ASE 3313 Incompressible Aerodynamics ASE 4413 Aircraft Propulsion ASE 4513 Aircraft Design I ASE 4523 Aircraft Design II Astronautics ASE 3813 Introduction to Orbital Mechanics ASE 3823 Spacecraft Attitude Dynamics ASE 4443 Spacecraft Propulsion ASE 4533 Spacecraft Design I ASE 4543 Spacecraft Design II	15
Total Hours	128	Total Hours	128

MISSISSIPPI STATE UNIVERSITY
JAMES WORTH BAGLEY COLLEGE OF ENGINEERING

DEPARTMENT OF
COMPUTER SCIENCE & ENGINEERING

Dr. Sarah B. Lee
Associate Clinical Professor
sblee@cse.msstate.edu

April 10, 2018

University Committee on Courses and Curricula
Mississippi State University

Subject: Letter of Support

Dear Dr. Franz:

The Department of Computer Science and Engineering is supporting the introduction of CSE 1233 – "Computer Programing with C" in the curriculum proposed by the Department of Aerospace Engineering. We are aware of the potential increase of the student enrollment in this class, and look forward to opening new sections to accommodate the incoming ASE students.

Please do not hesitate to contact me if you need additional information.

Sincerely,

Sarah B Lee

Dr. Sarah Lee
Assistant Department Head
Director of Undergraduate Studies
Computer Science & Engineering

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: Bagley College of Engineering **Department:** Computer Science & Engineering

Contact Person: Sarah B. Lee **Mail Stop:** 9637 **E-mail:** sblee@cse.msstate.edu

Nature of Change: Modification **Date Initiated:** 10/31/2018 **Effective Date:** 8/1/2018

Degree to be offered at: Starkville campus

Current Degree Program Name: B.S.

Major: Computer Science **Concentration:**

New Degree Program Name:

Major: **Concentration:**

Summary of Proposed Changes:

The science and math requirements are being changed. The total number of hours required for math and science remains the same. The international/intercultural elective is also being removed and additional free electives are being added.

Approved:	Date:
Department Head	Shahram Rahimi 11/6/18
Chair, College or School Curriculum Committee	11/26/18
Dean of College or School	11/26/18
Chair, University Committee on Courses and Curricula	
Chair, Graduate Council(if applicable)	
Chair, Deans Council	

DEGREE MODIFICATION PROPOSAL

1. CATALOG DESCRIPTION

See below.

2. CURRICULUM OUTLINE

CURRENT Degree Description	PROPOSED Degree Description
Degree:B.S. Major:Computer Science Concentration:N/A	Degree:B.S. Major:Computer Science Concentration:N/A
Computer Science is the study of the principles, applications, and technologies of computing and computers. It involves the study of data and data structures and the algorithms to process these structures; principles of computer architecture-both hardware and software; problem solving and design methodologies; and language design, structure and translation techniques. Computer Science provides a foundation of knowledge for students with career objectives in a wide range of computing and computer-related professions. Computer Science graduates begin careers as computer programmers, system analysts, programmer/analysts, software engineers, systems programmers, computer system engineers and in a number of other computer-related jobs. A minor in computer science is available to students with major programs of study in other fields at the University. The Bachelor of Science degree requires the completion of a total of 128 credit hours of general studies, computer science, mathematics and science, and supporting technical courses. To graduate, a student must have a "C" average in all MSU computer science and engineering courses attempted. The computer science program is accredited by the Computing Accreditation Commission of ABET, http://www.abet.org.	Computer Science is the study of the principles, applications, and technologies of computing and computers. It involves the study of data and data structures and the algorithms to process these structures; principles of computer architecture-both hardware and software; problem solving and design methodologies; and language design, structure and translation techniques. Computer Science provides a foundation of knowledge for students with career objectives in a wide range of computing and computer-related professions. Computer Science graduates begin careers as computer programmers, system analysts, programmer/analysts, software engineers, systems programmers, computer system engineers and in a number of other computer-related jobs. A minor in computer science is available to students with major programs of study in other fields at the University. The Bachelor of Science degree requires the completion of a total of 128 credit hours of general studies, computer science, mathematics and science, and supporting technical courses. To graduate, a student must have a "C" average in all MSU computer science and engineering courses attempted. The computer science program is accredited by the Computing Accreditation Commission of ABET, http://www.abet.org.

CURRENT CURRICULUM OUTLINE	Required Hours	**PROPOSED CURRICULUM OUTLINE**	Required Hours
EN 1103 English Composition I	6	EN 1103 English Composition I	6

EN 1113 English Composition II		EN 1113 English Composition II	
Fine Arts (any General Education course in this category)	3	Fine Arts (any General Education course in this category)	3
Humanities (any General Education course in this category)	6	Humanities (any General Education course in this category)	6
Social Science (any General Education course in this category)	6	Social Science (any General Education course in this category)	6
Technical Writing GE 3513	3	Technical Writing GE 3513	3
Communications: CO 1003/CO1013	3	Communications: CO 1003/CO1013	3
Departmental Requirements:		**Departmental Requirements:**	
International/Intercultural Studies	3	MA 1713 Calculus I	3
MA 1713 Calculus I	3	MA 1723 Calculus II	3
MA 1723 Calculus II	3	MA 3113 Linear Algebra	3
MA 2733 Calculus III	3	**Math elective:**	
MA 3113 Linear Algebra	3	**MA 2733 Calculus III, or**	3
IE 4613 Engineering Statistics I	3	**MA 3053 Foundations of Math., or**	
BIO 1134 Biological Science I	4	**MA 4143 Graph Theory, or**	
CH 1213 Chemistry I	3	**MA 4173 Number Theory**	
CH 1211 Chemistry Lab	1	IE 4613 Engineering Statistics I	3
PH 2213 Physics I	3	BIO 1134 Biological Science I	4
PH 2223 Physics II	3	CH 1213 Chemistry I	3
CSE 1002 Intro to CSE	2	CH 1211 Chemistry Lab	1
CSE 1284 Intro Comp Prog.	4	PH 2213 Physics I	3
CSE 1384 Inter Comp Prog.	4	**Science Elective:**	
CSE 2383 Data Str & Anal of Alg	3	**PH 2223 Physics 2, or**	3
CSE 2813 Discrete Structures	3	**CH 1223 Chemistry 2 & CH 1221, or**	
CSE 3324 Dist Client Serv Prog	4	**BIO 1144 Biology 2**	
CSE 3813 Formal Languages	3	CSE 1002 Intro to CSE	2
CSE 3981 Social & Ethical Issues	1	CSE 1284 Intro Comp Prog.	4
CSE 4503 Database Mgmt Sys	3	CSE 1384 Inter Comp Prog.	4
CSE 4713 Programming Lang.	3	CSE 2383 Data Str & Anal of Alg	3
CSE 4733 Operating Systems I	3	CSE 2813 Discrete Structures	3
CSE 4833 Intro. to Anal. of Alg.	3	CSE 3324 Dist Client Serv Prog	4
CSE Group 1 Electives	6	CSE 3813 Formal Languages	3
CSE Group 2 Electives	6	CSE 3981 Social & Ethical Issues	1
ECE 3714 Digital Devices	4	CSE 4503 Database Mgmt Sys	3
ECE 3724 Microprocessors I	4	CSE 4713 Programming Lang.	3
ECE 4713 Computer Architecture	3	CSE 4733 Operating Systems I	3
Technical Elective	3	CSE 4833 Intro. to Anal. of Alg.	3
Free electives	7		

		CSE Group 1 Electives	6
		CSE Group 2 Electives	6
		ECE 3714 Digital Devices	4
		ECE 3724 Microprocessors I	4
		ECE 4713 Computer Architecture	3
		Technical Elective	**6**
		Free electives	7
Technical Electives: *MA 2743 Calculus IV* *MA 3253 Differential Equations* *MA 4313 Numerical Analysis* *MA 4523 Probability* IE 3913 Engineering Economy IE 4773 Simulation IE 4533 Project Management IE 4513 Engineering Administration *IE 4624 Statistics II* IE 4713 Operations Research *ECE 4723 Microprocessors II* *ECE 4733 Adv. Microprocessors* *ECE 4743 Digital Systems Design* any upper-level computer science course		**Technical Electives:** IE 3913 Engineering Economy IE 4773 Simulation IE 4533 Project Management IE 4513 Engineering Administration IE 4713 Operations Research BIS 4533 Decision Support Systems BIS 4523 Business programming with COBOL **IE 4113 Human Factors Engineering** **IE 4123 Psychology of HCI** **IE 4333 Production Control Systems I** **IE 4573 Process Improvement Engineering** **IE 4623 Engineering Statistics II** **IE 4653 Industrial Quality Control I** **IE 4733 Linear Programming I** **any upper-level CSE, ECE, or MA course**	
Concentration Courses		Concentration Courses	
Total Hours	128	Total Hours	128

3. JUSTIFICATION AND STUDENT LEARNING OUTCOMES

This modification is being made in order to provide additional alternatives for CS major technical electives. Recognizing the need for business expertise for some computing career paths, courses in the College of Business -Business Information Systems department were evaluated for inclusion as technical electives.

- Will this program change meet local, state, regional, and national educational and cultural needs? **No**
- Will this program change result in duplication in the System? **No**
- Will this program change/advance student diversity within the discipline? **No**.
- Will this program change result in an increase in the potential placement of graduates in MS, the Southeast, and the U.S.? **No**
- Will this program change result in an increase in the potential salaries of graduates in MS, the Southeast, and the U.S.? **No**

The learning outcomes of the program, listed below, remain the same:

1. The graduate will demonstrate an understanding of computer science principles and an ability to solve unstructured computer science problems through the successful entrance into and advancement in the computer science profession.
2. The graduate will demonstrate an appreciation for lifelong learning and for the value of continuing professional development through participation in graduate education, professional education or continuing education opportunities, attainment of professional licensure, or membership in professional societies.
3. The graduate will demonstrate an understanding of professional and ethical responsibilities to the profession, society and the environment incumbent on a computer science professional.
4. The graduate will successfully interact with others of different backgrounds, educations, and cultures.
5. The graduate will demonstrate effective communication skills in their profession.

MISSISSIPPI STATE UNIVERSITY
JAMES WORTH BAGLEY COLLEGE OF ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Andy D. Perkins, Ph.D.
Associate Professor
perkins@cse.msstate.edu

November 1, 2018

University Committee on Courses and Curricula
PO Box 5268
Mississippi State, MS 39762

Dr. Franz:

Please find attached a proposal to modify the requirements for the BS in Computer Science and the BS in Software Engineering. The Computer Science and Engineering faculty voted unanimously (18 present, 3 absent) to approve these changes at the faculty meeting on September 28, 2018.

Please feel free to contact me if there are any questions or concerns.

Sincerely,

Andy D. Perkins, Ph.D.
CSE Courses and Curricula Chair
Associate Professor

Christopher Archibald, Ph.D.
CSE Courses and Curricula Member
Assistant Professor

Joseph Crumpton, Ph.D.
CSE Courses and Curricula Member
Assistant Clinical Professor

Christopher McDaniel
CSE Courses and Curricula Member
Instructor

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: Bagley College of Engineering **Department:** Computer Science & Engineering

Contact Person: Sarah B. Lee **Mail Stop:** 9637 **E-mail:** sblee@cse.msstate.edu

Nature of Change: Modification **Date Initiated:** 10/31/2018 **Effective Date:** 8/1/2018

Degree to be offered at: Starkville campus

Current Degree Program Name: B.S.

Major: Software Engineering **Concentration:**

New Degree Program Name:

Major: **Concentration:**

Summary of Proposed Changes:

The science and math requirements are being changed. The total number of hours required for math and science remains the same. The technical electives approved list is also being modified.

Approved:	Date:
Department Head	Shahram Rahimi
Chair, College or School Curriculum Committee	11/26/18
Dean of College or School	11/26/18
Chair, University Committee on Courses and Curricula	
Chair, Graduate Council(if applicable)	
Chair, Deans Council	

DEGREE MODIFICATION PROPOSAL

1. CATALOG DESCRIPTION

See below.

2. CURRICULUM OUTLINE

CURRENT Degree Description		PROPOSED Degree Description	
Degree:B.S. Major:Software Engineering Concentration:N/A		Degree:B.S. Major: Software Engineering Concentration:N/A	
Software Engineering is the application of engineering practices to the design and maintenance of software. The Software Engineering degree program prepares students for careers in the engineering of large complex software systems and products. These systems often involve millions of lines of code and frequently operate in safety-critical environments. The Software Engineering major contains courses related to the study of software engineering in practice necessary to manage these development processes. The faculty for the Software Engineering program is drawn from the Department of Computer Science and Engineering and the Department of Industrial Engineering. The objectives for the department with respect to the Bachelor of Science Degree in Software Engineering are as follows: 1. The graduate will demonstrate an understanding of engineering principles and an ability to solve unstructured engineering problems through the successful entrance into and advancement in the engineering profession. 2. The graduate will demonstrate an appreciation for lifelong learning and for the value of continuing professional development through participation in graduate education, professional education or continuing education opportunities, attainment of professional licensure, or membership in professional societies. 3. The graduate will demonstrate an understanding of professional and ethical responsibilities to the profession, society and the environment incumbent on an engineering professional. 4. The graduate will successfully interact with others of different backgrounds, educations, and cultures. 5. The graduate will demonstrate effective communication skills in their profession. The software engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.		Software Engineering is the application of engineering practices to the design and maintenance of software. The Software Engineering degree program prepares students for careers in the engineering of large complex software systems and products. These systems often involve millions of lines of code and frequently operate in safety-critical environments. The Software Engineering major contains courses related to the study of software engineering in practice necessary to manage these development processes. The faculty for the Software Engineering program is drawn from the Department of Computer Science and Engineering and the Department of Industrial Engineering. The objectives for the department with respect to the Bachelor of Science Degree in Software Engineering are as follows: 1. The graduate will demonstrate an understanding of engineering principles and an ability to solve unstructured engineering problems through the successful entrance into and advancement in the engineering profession. 2. The graduate will demonstrate an appreciation for lifelong learning and for the value of continuing professional development through participation in graduate education, professional education or continuing education opportunities, attainment of professional licensure, or membership in professional societies. 3. The graduate will demonstrate an understanding of professional and ethical responsibilities to the profession, society and the environment incumbent on an engineering professional. 4. The graduate will successfully interact with others of different backgrounds, educations, and cultures. 5. The graduate will demonstrate effective communication skills in their profession. The software engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.	
CURRENT CURRICULUM OUTLINE	Required Hours	**PROPOSED CURRICULUM OUTLINE**	Required Hours
EN 1103 English Composition I EN 1113 English Composition II	6	EN 1103 English Composition I EN 1113 English Composition II	6

Fine Arts (any General Education course in this category)	3	Fine Arts (any General Education course in this category)	3
Humanities (any General Education course in this category)	6	Humanities (any General Education course in this category)	6
Social Science (any General Education course in this category)	6	Social Science (any General Education course in this category)	6
Technical Writing GE 3513	3	Technical Writing GE 3513	3
Communications: CO 1003/CO1013	3	Communications: CO 1003/CO1013	3
Departmental Requirements:		**Departmental Requirements:**	
MA 1713 Calculus I	3	MA 1713 Calculus I	3
MA 1723 Calculus II	3	MA 1723 Calculus II	3
MA 2733 Calculus III	3	**MA 3113 Linear Algebra**	3
4th Math course: *MA 2743/3052/3113/or 3253*	3	**Math elective:** **MA 2733 Calculus III, or MA 3053 Foundations of Math., or MA 4143 Graph Theory, or MA 4173 Number Theory**	3
IE 4613 Engineering Statistics I	4	IE 4613 Engineering Statistics I	4
BIO 1134 Biological Science I	3	BIO 1134 Biological Science I	3
CH 1213 Chemistry I	1	CH 1213 Chemistry I	1
CH 1211 Chemistry Lab	3	CH 1211 Chemistry Lab	3
PH 2213 Physics I	3	PH 2213 Physics I	
PH 2223 Physics II	2	**Science Elective:** **PH 2223 Physics 2, or CH 1223 Chemistry 2 & CH 1221, or BIO 1144 Biology 2**	3
CSE 1002 Intro to CSE	4	CSE 1002 Intro to CSE	2
CSE 1284 Intro Comp Prog.	4	CSE 1284 Intro Comp Prog.	4
CSE 1384 Inter Comp Prog.	3	CSE 1384 Inter Comp Prog.	4
CSE 2383 Data Str & Anal of Alg	3	CSE 2383 Data Str & Anal of Alg	3
CSE 2813 Discrete Structures	4	CSE 2813 Discrete Structures	3
CSE 3324 Dist Client Serv Prog	1	CSE 3324 Dist Client Serv Prog	4
CSE 3981 Social & Ethical Issues	3	CSE 3981 Social & Ethical Issues	1
CSE 4503 Database Mgmt Sys	3	CSE 4503 Database Mgmt Sys	3
CSE 4733 Operating Systems I	3	CSE 4733 Operating Systems I	3
CSE 4833 Intro. to Anal. of Alg.	4	CSE 4833 Intro. to Anal. of Alg.	3
ECE 3714 Digital Devices	4	ECE 3714 Digital Devices	4
ECE 3724 Microprocessors I	3	ECE 3724 Microprocessors I	4
CSE 3213 SW Eng Sr Project 1	3	CSE 3213 SW Eng Sr Project 1	3
CSE 3223 SW Eng Sr Project 2	3		
CSE 4153 Data Comm Networks	3		
CSE 4283 SW Testing & QA	3		
CSE 4233 SW Arch & Design	3		
CSE Security Elective	3		
IE 4533 Project Mgmt or CSE 4223 SW Project Mgmt	4		

CSE 4214 Intro to SE Technical Elective Free electives	3 7	CSE 3223 SW Eng Sr Project 2 CSE 4153 Data Comm Networks CSE 4283 SW Testing & QA CSE 4233 SW Arch & Design IE 4533 Project Mgmt or CSE 4223 SW Project Mgmt CSE 4214 Intro to SE CSE Security elective Technical Elective Free electives	3 3 3 3 3 4 3 6 3
Technical Electives: *MA 2743 Calculus IV* *MA 3253 Differential Equations* *MA 4313 Numerical Analysis* *MA 4523 Probability* IE 3913 Engineering Economy IE 4773 Simulation IE 4533 Project Management IE 4513 Engineering Administration *IE 4624 Statistics II* IE 4713 Operations Research *ECE 4723 Microprocessors II* *ECE 4733 Adv. Microprocessors* *ECE 4743 Digital Systems Design* any upper-level computer science course		**Technical Electives:** IE 3913 Engineering Economy IE 4773 Simulation IE 4533 Project Management IE 4513 Engineering Administration IE 4713 Operations Research **IE 4113 Human Factors Engineering** **IE 4123 Psychology of HCI** **IE 4333 Production Control Systems I** **IE 4573 Process Improvement Engineering** **IE 4623 Engineering Statistics II** **IE 4653 Industrial Quality Control I** **IE 4733 Linear Programming I** **BIS 4523 Business Programming w/COBOL** **BIS 4533 Decision Support Sys** **any upper-level CSE, ECE, or MA course**	
Concentration Courses		Concentration Courses	
Total Hours	128	Total Hours	128

3. JUSTIFICATION AND STUDENT LEARNING OUTCOMES

This modification is being made in order to provide additional alternatives for SE major technical electives. Recognizing the need for business expertise for some computing career paths, courses in the College of Business -Business Information Systems department were evaluated for inclusion as technical electives. In addition, math courses are being added to match the technical elective requirements in the CS major.

- Will this program change meet local, state, regional, and national educational and cultural needs? **No**
- Will this program change result in duplication in the System? **No**
- Will this program change/advance student diversity within the discipline? **No.**
- Will this program change result in an increase in the potential placement of graduates in MS, the Southeast, and the U.S.? **No**

- Will this program change result in an increase in the potential salaries of graduates in MS, the Southeast, and the U.S.? **No**

The learning outcomes of the program, listed below, remain the same:

1. Graduates will demonstrate an ability to apply knowledge of mathematics, science, and engineering
2. Graduates will demonstrate an ability to design and conduct experiments, as well as to analyze and interpret data
3. Graduates will demonstrate an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
4. Graduates will demonstrate an ability to function on multidisciplinary teams
5. Graduates will demonstrate an ability to identify, formulate, and solve engineering problems
6. Graduates will demonstrate an understanding of professional and ethical responsibility
7. Graduates will demonstrate an ability to communicate effectively
8. Graduates will demonstrate the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
9. Graduates will demonstrate a recognition of the need for, and an ability to engage in life-long learning
10. Graduates will demonstrate a knowledge of contemporary issues
11. Graduates will demonstrate an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

MISSISSIPPI STATE UNIVERSITY™
JAMES WORTH BAGLEY COLLEGE OF ENGINEERING

DEPARTMENT OF
COMPUTER SCIENCE & ENGINEERING

Andy D. Perkins, Ph.D.
Associate Professor
perkins@cse.msstate.edu

November 1, 2018

University Committee on Courses and Curricula
PO Box 5268
Mississippi State, MS 39762

Dr. Franz:

Please find attached a proposal to modify the requirements for the BS in Computer Science and the BS in Software Engineering. The Computer Science and Engineering faculty voted unanimously (18 present, 3 absent) to approve these changes at the faculty meeting on September 28, 2018.

Please feel free to contact me if there are any questions or concerns.

Sincerely,

Andy D. Perkins, Ph.D.
CSE Courses and Curricula Chair
Associate Professor

Christopher Archibald, Ph.D.
CSE Courses and Curricula Member
Assistant Professor

Joseph Crumpton, Ph.D.
CSE Courses and Curricula Member
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Christopher McDaniel
CSE Courses and Curricula Member
Instructor

APPROVAL FORM FOR

DEGREE PROGRAMS

MISSISSIPPI STATE UNIVERSITY

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College: Bagley College of Engineering **Department: Computer Science & Eng.**

Contact Person: Dr. T.J. Jankun-Kelly **Mail Stop: 9637 E-mail: tjk@cse.mstate.edu**
Nature of Change: Modification **Date Initiated: 11/18** **Effective Date: 1/19**
Current Degree Program Name: Computer Science (Starkville & Distance)

Major: MS **Concentration: N/A**

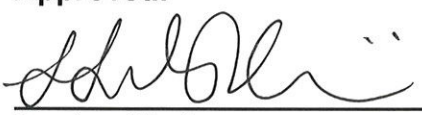
New Degree Program Name: Computer Science (Starkville & Distance)

Major: MS **Concentration: N/A**

Summary of Proposed Changes:

Prerequisites changed. Distribution of courses changed. Catalog text changed.

Approved: **Date:**

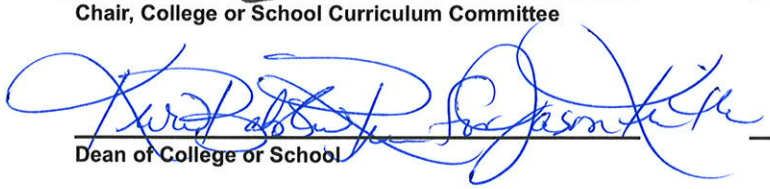


11/12/18

Department Head

11/26/18

Chair, College or School Curriculum Committee



11/26/18

Dean of College or School

Chair, University Committee on Courses and Curricula

Chair, Graduate Council(if applicable)

Chair, Deans Council

1. Catalog Description

Graduate study is offered in the Department of Computer Science and Engineering leading to the degrees of Master of Science in Computer Science, Master of Science in Cyber Security and Operations, and Doctor of Philosophy in Computer Science.

The program of study of a Master of Science in Computer Science degree includes advanced courses in computer science that are selected according to the goals of the student. The program of study includes a thesis option, a professional project option, or courses-only option. The program of study of a Doctor of Philosophy (Ph.D.) in Computer Science degree includes advanced courses in computer science and significant scholarly research in computer science, presented in a dissertation. Applicants with bachelor degrees can apply for direct admission to the Ph.D. program. Applicants with master's degrees are also welcome.

The department's core research areas include the following.
- Artificial intelligence
- Computational science
- Graphics
- Human centered computing
- Software engineering and systems

These core competencies support research applications in areas such as bioinformatics, visualization, computer security and forensics, human-computer interactions and high performance computing. Faculty, research assistants, thesis students, and dissertation students participate in a wide variety of research projects. Many research projects are multi-disciplinary or multi-specialty in nature.

2. Graduate Degree Curriculum Outline

Deletions in *italics* and additions in **bold.**

CURRENT Degree Description	PROPOSED Degree Description
Degree: Computer Science Major: MS (Thesis & Non-Thesis) Concentrations: None	Degree: Computer Science Major: MS (Thesis & Non-Thesis) Concentrations: None

(All current contents are being removed for simplification. As admission requirements, prereqs, and so forth are not required to be part of the catalog (and require UCCC approval to be changed), these are being excised and moved to our Graduate Handbook.)		**Graduate study is offered in the Department of Computer Science and Engineering leading to the degrees of Master of Science in Computer Science, Master of Science in Cyber Security and Operations, and Doctor of Philosophy in Computer Science.** **Masters and PhD in Computer Science** **The program of study of a Master of Science in Computer Science degree includes advanced courses in computer science that are selected according to the goals of the student. The program of study includes a thesis option, a professional project option, or courses-only option. The program of study of a Doctor of Philosophy (Ph.D.) in Computer Science degree includes advanced courses in computer science and significant scholarly research in computer science, presented in a dissertation.** **The department's core research areas include the following.** **• Artificial intelligence** **• Computational science** **• Graphics** **• Human centered computing** **• Software engineering and systems** **These core competencies support research applications in areas such as bioinformatics, visualization, computer security and forensics, human-computer interactions, robotics, and high performance computing. Faculty, research assistants, thesis students, and dissertation students participate in a wide variety of research projects. Many research projects are multi-disciplinary or multi-specialty in nature.** **MS applicants are required to have a 3.0 GPA in overall undergraduate work and complete the GRE to the committee's satisfaction before admission; international students require a suitable demonstration of English proficiency. Candidates for the master's degree must have completed all prerequisite courses or their equivalent. For additional details, consult the CS Department's Graduate Handbook.**	
CURRENT CURRICULUM OUTLINE	Required Hours	**PROPOSED CURRICULUM OUTLINE**	Required Hours

Theory Courses *One of the following:* • *CSE 8813 Theory of Computation* • *CSE8833Algorithms* • *CSE 8843 Complexity of Sequential and Parallel Algorithms* *CSE 8990 Special Topics in Computer Science & Engineering* *CSE8990 may only be chosen if it has been designated in advance by the department as a theory course fulfilling this requirement.*	*3*	**Core Courses** **The CS Core ensures students are prepared for graduate study and have a background in computer theory suitable for a graduate degree in computer science.** • **CSE 8011: Seminar** • **One of CSE 8833: Algorithms, CSE 8813: Theory of Computation, or CSE 8843: Complexity of Sequential and Parallel Algorithms.** **Classes designated as theory in advance by the faculty can be used to substitute for the theory requirement on a case-by-case basis.**	**4**
Seminar Course • *CSE 8011 Graduate Seminar*	*1*	(Folded into Core section)	
Fundamental Area Courses *At least three of the following:* • *CSE 6153 Data Communications and Computer Networks* • *CSE 6163 Designing Parallel Algorithms* • *CSE 6214 Introduction to Software Engineering* • *CSE 6413 Principles of Computer Graphics* • *CSE 6503 Database Management Systems* *CSE6633 Artificial Intelligence* *A student who has taken any of these six courses for undergraduate credit may use the undergraduate course to meet the graduate Fundamental Areas requirement and substitute another graduate-level course approved by the student's graduate committee.*	*9*	**Primary Specialization** **Students will complete 9 hours in a primary specialization approved by their committee. One of these courses must be a required introductory course at the split level. A separate course must also be completed at the full graduate level in the specialization.**	**9**

Non-Thesis Option • *Graduate Coursework.* *A minimum of 15 credit hours of the courses in the program of study must be at the full graduate level (numbered 8000 or 9000). One of the three additional courses may be CSE 8080 if the student's major professor (or another member of the student's graduate committee) agrees to direct the project.*	*18*	**Secondary Specialization** **Students will complete 6 hours in a primary specialization approved by their committee. One of these courses must be a required introductory course at the split level.**	**6**
Thesis Option • *Graduate Coursework: 12 hours* • *CSE 8000 Thesis Research/ Thesis in Computer Science and Engineering: 6 hours* *A minimum of 15 credit hours of the courses in the program of study must be at the full graduate level (numbered 8000 or 9000).*	*18*	**Additional Coursework** • **Graduate Coursework, possibly including directed project or thesis** **Students, in cooperation with their committee, can choose to do a directed project or a thesis to replace some of these additional 12 hours. A directed project requires taking course CSE 8080 under the direction of the student's major professor or other member of the student's committee. A thesis requires 6 hours of CSE 8000 under the guidance of a thesis director as per the Catalog.** **Any required courses in the Core or a Specialization previously completed by a student may be applied for completion and replaced with another free course of the student's and committee's choosing** **A minimum of 15 credit hours of the courses in the total program of study must be at the full graduate level (numbered 8000 or 9000).**	**12**
Total Hours	31	Total Hours	31

3. Justification and Student Learning Outcomes

These changes simplify the description our our MS program, tie courses to our faculty's focus areas in a manner similar to our PhD program, and make the admissions in line with future changes to our BS degrees. No changes to the number of course hours or to the courses offered are being made.

Admission Changes: Recent proposed changes to our BS programs are moving to drop the requirement for MA 2733: Cal III in the program. If it is removed from our BS programs, we need to remove it from our Graduate programs or put our students in situation where they are not eligible for our program. In addition, the number of our requirements made it difficult to admit students or have them graduate in a timely manner; it is also not in line with Peer institutions (we currently have the most of those surveyed). Thus, additional simplifications were made: Microprocessors and Programming Languages were removed; Formal Languages was moved to be an option with Algorithms. This set of prerequisites cover the requirements of our focus area courses and are in line with Peer/

Peer+ universities.

Change of Structure: Instead of a Fundamental Area/Theory/Seminar/Additional Courses structure, we now have a Core/Primary Specialization/Secondary Specialization/Additional Courses structure. This structure is in line with our PhD program (which already requires speculations) and thus benefits students transitioning from an MS to a PhD here. A list of suggested specialization will be kept in the department as a live document, allowing us to update it as faculty and department needs change. The course previously in the Fundamental areas are all requirements for some specialization on the list.

4. Support

A letter of support from the Graduate Coordinator of the Department of Computer Science and Engineering is attached.

5. Proposed 4-Letter Abbreviation

The MSU registrar has adopted CS as the abbreviation of Computer Science degrees.

6. Effective Date

Spring 2019

MISSISSIPPI STATE UNIVERSITY
JAMES WORTH BAGLEY COLLEGE OF ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Dr.T.J. Jankun-Kelly
Associate Professor & Graduate Coordinator
tjk@cse.msstate.edu

November 7, 2018

University Committee on Courses & Curricula
218 Garner Hall
Mailstop 9702
Mississippi State University

UCCC Committee,

With this letter, the Department of Computer Science & Engineering requests changes to the admission requirements for our CS MS & PhD degrees and our CYSO MS degree. Similarly, we request changing the structure in terms of courses required for all three degrees to better serve our students and ensure they graduate in a timely fashion. Edits and classifications to our Catalog entries are also provided. These modifications were approved by the faculty of Computer Science & Engineering at our faculty meeting on Thursday, November 1st, 2018.

Please do not hesitate to contact me if additional information is needed.

Sincerely yours,

Dr. T.J. Jankun-Kelly
Director of Graduate Studies

MISSISSIPPI STATE UNIVERSITY™
JAMES WORTH BAGLEY COLLEGE OF ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Andy D. Perkins, Ph.D.
Associate Professor
perkins@cse.msstate.edu

November 5, 2018

University Committee on Courses and Curricula
PO Box 5268
Mississippi State, MS 39762

Dr. Franz:

Please find attached a proposal to modify the MS and PhD degrees in Computer Science. The Computer Science and Engineering faculty voted unanimously to approve this addition at the faculty meeting on November 2, 2018.

Please feel free to contact me if there are any questions or concerns.

Sincerely,

Andy D. Perkins, Ph.D.
CSE Courses and Curricula Chair
Associate Professor

Christopher Archibald, Ph.D.
CSE Courses and Curricula Member
Assistant Professor

Joseph Crumpton, Ph.D.
CSE Courses and Curricula Member
Assistant Clinical Professor

Christopher McDaniel
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Instructor

APPROVAL FORM FOR

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College: Bagley College of Engineering **Department: Computer Science & Eng.**

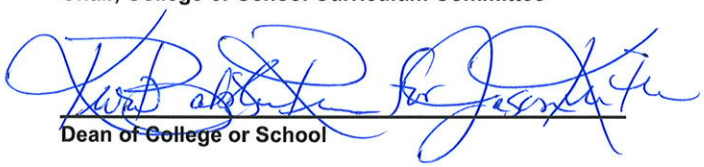
Contact Person: Dr. T.J. Jankun-Kelly **Mail Stop: 9637 E-mail: tjk@cse.mstate.edu**
Nature of Change: Modification **Date Initiated: 11/18 Effective Date: 1/19**

Current Degree Program Name: Cyber Security & Operations (Starkville & Distance)
Major: MS **Concentration: Operations, Defense**

New Degree Program Name: Cyber Security & Operations (Starkville & Distance)
Major: MS **Concentration: Operations, Defense**

Summary of Proposed Changes:

Prerequisites changed. Distribution of courses changed. Catalog text changed.

Approved:	**Date:**
	11/12/18
Department Head	
	11/26/18
Chair, College or School Curriculum Committee	
	11/24/18
Dean of College or School	
Chair, University Committee on Courses and Curricula	
Chair, Graduate Council(if applicable)	
Chair, Deans Council	

1. Catalog Description

The Master of Science in Cyber Security and Operations is designed for students who wish to help meet the challenges posed by increasing cyber-threats. Using a multidisciplinary approach, the program is designed to provide students with a focused education within a broad analytical framework for evaluating, understand, and solving cyber security problems. Either concentration will allow a thesis or non-thesis option.

The Cyber Defense concentration will focus on those aspects of cyber security needed to prepare an enterprise level system to protect itself. Material will prepare the students for developing cyber security policies to comply with existing and future laws, conducting risk assessment in enterprise to determine compliance with requirements and implementing security solutions for the enterprise.

The Cyber Operations concentration will focus on those aspects of cyber security that are needed to operate in the cyber domain. Material will prepare the student for advanced operations in the cyber domain such as penetration testing, after action analysis, and malware analysis. This concentration is designed to satisfy the requirements for the Center of Academic Excellence in Cyber Operations program of the Department of Defense.

2. Graduate Degree Curriculum Outline

Deletions in *italics* and additions in **bold.**

CURRENT Degree Description	PROPOSED Degree Description
Degree: Cyber Security and Operations Major: MS (Thesis & Non-Thesis) Concentrations: Cyber Defense, Cyber Operations	Degree: Cyber Security and Operations Major: MS (Thesis & Non-Thesis) Concentrations: Cyber Defense, Cyber Operations

(There is no separate catalog description for CYSO as it is part of the CS Graduate Catalog entry. As with the proposed CS Graduate degree changes, all current contents are being removed for simplification. As admission requirements, prereqs, and so forth are not required to be part of the catalog (and require UCCC approval to be changed), these are being excised and move to our Graduate Handbook.)	**Graduate study is offered in the Department of Computer Science and Engineering leading to the degrees of Master of Science in Computer Science, Master of Science in Cyber Security and Operations, and Doctor of Philosophy in Computer Science.** **Cyber Security And Operations** **The Master of Science in Cyber Security and Operations is designed for students who wish to help meet the challenges posed by increasing cyber-threats. The Cyber Defense concentration will focus on those aspects of cyber security needed to prepare an enterprise level system to protect itself; while the Cyber Operations concentration will focus on those aspects of cyber security that are needed to operate in the cyber domain. Using a multidisciplinary approach, the program is designed to provide students with a focused education within a broad analytical framework for evaluating, understand, and solving cyber security problems. Either concentration will allow a thesis or non-thesis option.** **MS applicants are required to have a 3.0 GPA in overall undergraduate work and complete the GRE to the committee's satisfaction before admission; international students require a suitable demonstration of English proficiency. Candidates for the master's degree must have completed all prerequisite courses or their equivalent. For additional details, consult the CS Department's Graduate Handbook.**

CURRENT CURRICULUM OUTLINE	Required Hours	**PROPOSED CURRICULUM OUTLINE**	Required Hours
Major Required Courses • CSE 8011 Graduate Seminar • CSE 6243 Information and Computer Security • CSE 6273 Introduction to Computer Forensics • CSE 6383 Cryptography and Network Security • *CSE 8723 Cyber Law and Policy* • *CSE 8743 Advanced Network Security*	*16*	Major Required Courses • CSE 8011 Graduate Seminar • CSE 6243 Information and Computer Security • CSE 6273 Introduction to Computer Forensics • CSE 6383 Cryptography and Network Security	**10**
Concentration: Cyber Defense • BIS 6113 Business Information Systems Security Management • *Two advanced Cyber Security electives*	*9*	Concentration: Cyber Defense • BIS 6113 Business Information Systems Security Management • **Advanced Cyber Defense electives**	**3** **12**

Concentration: Cyber Operations • *CSE 6363 Software Reverse Engineering* • CSE 8713 Advanced Cyber Operations • *ECE 8823 Wireless Networks*	*9*	Concentration: Cyber Operations • CSE 8713 Advanced Cyber Operations • **Advanced Cyber Operations electives**	**3** **12**
Thesis or Non-Thesis Option • Thesis Option: CSE 8000 Thesis Research/Thesis in Computer Science and Engineering: 6 hours • Non-Thesis Option: 6 hours of CSE or ECE electives	6	Thesis or Non-Thesis Option • Thesis Option: CSE 8000 Thesis Research/ Thesis in Computer Science and Engineering: 6 hours • Non-Thesis Option: 6 hours of CSE or ECE electives	6
Total Hours	31	Total Hours	31

3. Justification and Student Learning Outcomes

Primarily, these changes address the fact that this program is over specified in terms of courses: Only 6 of the 31 credit hours have any flexibility for one concentration (12/31 for the other). This makes it difficult for students to graduate in a timely fashion due to faculty time constraints. A live list of relevant courses to each concentration will be kept in our Graduate Handbook for students to satisfy their degree programs.

Admission Changes: To identify our degree as an engineering focused Cyber degree, we have added the requirement for a theory course to the degree for admission. This is in line with other Peer/Peer+ programs and allows our CYSO students more options when choosing CS electives that have those as a requirement. This information will be kept up to date in our Graduate Handbook.

4. Support

A letter of support from the Graduate Coordinator of the Department of Computer Science and Engineering is attached.

5. Proposed 4-Letter Abbreviation

The MSU registrar has adopted CYSO as the abbreviation of Cyber Operation degrees.

6. Effective Date

Spring 2019

MISSISSIPPI STATE UNIVERSITY
JAMES WORTH BAGLEY COLLEGE OF ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Dr.T.J. Jankun-Kelly
Associate Professor & Graduate Coordinator
tjk@cse.msstate.edu

November 7, 2018

University Committee on Courses & Curricula
218 Garner Hall
Mailstop 9702
Mississippi State University

UCCC Committee,

With this letter, the Department of Computer Science & Engineering requests changes to the admission requirements for our CS MS & PhD degrees and our CYSO MS degree. Similarly, we request changing the structure in terms of courses required for all three degrees to better serve our students and ensure they graduate in a timely fashion. Edits and classifications to our Catalog entries are also provided. These modifications were approved by the faculty of Computer Science & Engineering at our faculty meeting on Thursday, November 1st, 2018.

Please do not hesitate to contact me if additional information is needed.

Sincerely yours,

Dr. T.J. Jankun-Kelly
Director of Graduate Studies

MISSISSIPPI STATE UNIVERSITY
JAMES WORTH BAGLEY COLLEGE OF ENGINEERING

DEPARTMENT OF
COMPUTER SCIENCE & ENGINEERING

Andy D. Perkins, Ph.D.
Associate Professor
perkins@cse.msstate.edu

November 5, 2018

University Committee on Courses and Curricula
PO Box 5268
Mississippi State, MS 39762

Dr. Franz:

Please find attached a proposal to modify the MS degree in Cyber Security and Operations. The Computer Science and Engineering faculty voted unanimously to approve this addition at the faculty meeting on November 2, 2018.

Please feel free to contact me if there are any questions or concerns.

Sincerely,

Andy D. Perkins, Ph.D.
CSE Courses and Curricula Chair
Associate Professor

Christopher Archibald, Ph.D.
CSE Courses and Curricula Member
Assistant Professor

Joseph Crumpton, Ph.D.
CSE Courses and Curricula Member
Assistant Clinical Professor

Christopher McDaniel
CSE Courses and Curricula Member
Instructor

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: Bagley College of Engineering **Department: Computer Science & Eng.**

Contact Person: Dr. T.J. Jankun-Kelly **Mail Stop: 9637** **E-mail: tjk@cse.mstate.edu**
Nature of Change: Modification **Date Initiated: 11/18** **Effective Date: 1/19**
Current Degree Program Name: Computer Science (Starkville & Distance)

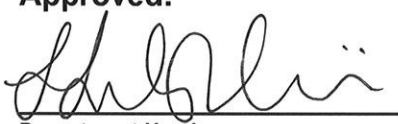
Major: PhD **Concentration: N/A**

New Degree Program Name: Computer Science (Starkville & Distance)

Major: PhD **Concentration: N/A**

Summary of Proposed Changes:

Prerequisites changed. Distribution of courses changed. Catalog text changed.

Approved:	**Date:**
	11/12/18
Department Head	
	11/26/18
Chair, College or School Curriculum Committee	
	11/26/18
Dean of College or School	
Chair, University Committee on Courses and Curricula	
Chair, Graduate Council(if applicable)	
Chair, Deans Council	

1. Catalog Description

Graduate study is offered in the Department of Computer Science and Engineering leading to the degrees of Master of Science in Computer Science, Master of Science in Cyber Security and Operations, and Doctor of Philosophy in Computer Science.

The program of study of a Master of Science in Computer Science degree includes advanced courses in computer science that are selected according to the goals of the student. The program of study includes a thesis option, a professional project option, or courses-only option. The program of study of a Doctor of Philosophy (Ph.D.) in Computer Science degree includes advanced courses in computer science and significant scholarly research in computer science, presented in a dissertation. Applicants with bachelor degrees can apply for direct admission to the Ph.D. program. Applicants with master's degrees are also welcome.

The department's core research areas include the following.
- Artificial intelligence
- Computational science
- Graphics
- Human centered computing
- Software engineering and systems

These core competencies support research applications in areas such as bioinformatics, visualization, computer security and forensics, human-computer interactions and high performance computing. Faculty, research assistants, thesis students, and dissertation students participate in a wide variety of research projects. Many research projects are multi-disciplinary or multi-specialty in nature.

2. Graduate Degree Curriculum Outline

Deletions in *italics* and additions in **bold.**

CURRENT Degree Description	PROPOSED Degree Description
Degree: Computer Science Major: PhD Concentrations: None	Degree: Computer Science Major: PhD Concentrations: None

(All current contents are being removed for simplification. As admission requirements, prereqs, and so forth are not required to be part of the catalog (and require UCCC approval to be changed), these are being excised and moved to our Graduate Handbook.)	**Graduate study is offered in the Department of Computer Science and Engineering leading to the degrees of Master of Science in Computer Science, Master of Science in Cyber Security and Operations, and Doctor of Philosophy in Computer Science.** **Masters and PhD in Computer Science** **The program of study of a Master of Science in Computer Science degree includes advanced courses in computer science that are selected according to the goals of the student. The program of study includes a thesis option, a professional project option, or courses-only option. The program of study of a Doctor of Philosophy (Ph.D.) in Computer Science degree includes advanced courses in computer science and significant scholarly research in computer science, presented in a dissertation.** **The department's core research areas include the following.** **• Artificial intelligence** **• Computational science** **• Graphics** **• Human centered computing** **• Software engineering and systems** **These core competencies support research applications in areas such as bioinformatics, visualization, computer security and forensics, human-computer interactions, robotics, and high performance computing. Faculty, research assistants, thesis students, and dissertation students participate in a wide variety of research projects. Many research projects are multi-disciplinary or multi-specialty in nature.** **An entering PhD student with an MS degree should have a 3.50/4.00 grade point average on MS work, while a PhD student entering with only a BS degree is expected to have a 3.50/4.00 on overall undergraduate work. A student with a lower GPA may still be eligible for admission based on outstanding qualifications in other areas. A student must complete the GRE to the committee's satisfaction before admission; international students require a suitable demonstration of English proficiency. Candidates for the PhD degree must have completed all prerequisite courses or their equivalent. Finally, a student must possess those qualifications and research interests that indicate to the Computer Science and Engineering Graduate Studies Committee that the applicant will be successful in the computer science doctoral program. For additional details, consult the CS Department's Graduate Handbook.**

CURRENT CURRICULUM OUTLINE	Required Hours	PROPOSED CURRICULUM OUTLINE	Required Hours
Theory Courses *Select two of the following:* • *CSE 8813 Theory of Computation* • *CSE8833Algorithms* • *CSE 8843 Complexity of Sequential and Parallel Algorithms* *CSE 8990 Special Topics in Computer Science & Engineering* *CSE8990 may only be chosen if it has been designated in advance by the department as a theory course fulfilling this requirement.*	*6*	**Core Courses** **The CS Core ensures students are prepared for graduate study and have a background in computer theory suitable for a graduate degree in computer science.** • **CSE 8011: Seminar** • **Two of CSE 8833: Algorithms, CSE 8813: Theory of Computation, or CSE 8843: Complexity of Sequential and Parallel Algorithms.** **Students with a previous MS do not have to complete 8011 if completed during MS work and require the completion of only 3 hours of Theory.** **Classes designated as theory in advance by the faculty can be used to substitute for the theory requirement on a case-by-case basis.**	**3–7**
Seminar Course • *CSE 8011 Graduate Seminar*	*1*	(Folded into Core section)	

Areas of Concentration *Select at least four full graduate courses from one area (the area of concentration) below and at least two full graduate courses from one other area below (the supporting area):* • *Artificial Intelligence* • *Software Engineering* • *High Performance Computing* • *Graphics and Visualization* • *Computer Security* *Courses applying directly to the student's research and approved by the student's Graduate Committee may be included in the research area coursework, even if they are offered from another area or by another department.*	*18*	**Primary Specialization** **Students will complete 15 hours in a primary specialization approved by their committee. One of these courses must be a required introductory course at the split level. Two separate courses must also be completed at the full graduate level in the specialization.** **Students with a previous MS must complete 6 hours in their primary specialization, 3 hours of which must be at the full graduate level. If the student did not complete the required introductory course in their previous work, it must still be completed.** **Secondary Specialization** **Students will complete 9 hours in a primary specialization approved by their committee. One of these courses must be a required introductory course at the split level. A separate course must also be completed at the full graduate level in the specialization.** **Students with a previous MS must complete 3 hours in their secondary specialization at the split or full graduate level. If the student did not complete the required introductory course in their previous work, it must still be completed.**	**6–15** **3–9**

Fundamental Area Courses *At least three of the following:* • *CSE 6153 Data Communications and Computer Networks* • *CSE 6163 Designing Parallel Algorithms* • *CSE 6214 Introduction to Software Engineering* • *CSE 6413 Principles of Computer Graphics* • *CSE 6503 Database Management Systems* *CSE6633 Artificial Intelligence* *A student who has taken any of these six courses for undergraduate credit may use the undergraduate course to meet the graduate Fundamental Areas requirement and substitute another graduate-level course approved by the student's graduate committee.*	*9*	(Folded into Specializations above)	
Additional Coursework • *Graduate Coursework: 9 hours* *A minimum of 15 credit hours of the courses in the program of study must be at the full graduate level (numbered 8000 or 9000).*	9	**Additional Coursework** **For direct admit students, additional graduate work must be completed:** • **Graduate Coursework** **Any required courses in the Core or a Specialization previously completed by a student may be applied for completion and replaced with another free course of the student's and committee's choosing** **A minimum of 21 credit hours of the courses in the total program of study for direct admit students must be at the full graduate level (numbered 8000 or 9000). This excludes dissertation hours.**	**0–12**
Dissertation Hours • CSE 9000 Dissertation Research/ Dissertation in Computer Science and Engineering	20	Dissertation Hours • CSE 9000 Dissertation Research/ Dissertation in Computer Science and Engineering	20
Total Hours	63	Total Hours	**12**–63

3. Justification and Student Learning Outcomes

These changes make the admissions in line with future changes to our BS degrees, add a differential admit option in line with the College, and raise the GPA requirement in line with the College. No changes to the number of course hours or to the courses offered are being made.

Admission Changes: Recent proposed changes to our BS programs are moving to drop the requirement for MA 2733: Cal III in the program. If it is removed from our BS programs, we need to remove it from our Graduate

programs or put our students in situation where they are not eligible for our program. In addition, the number of our requirements made it difficult to admit students or have them graduate in a timely manner; it is also not in line with Peer institutions (we currently have the most of those surveyed). Thus, additional simplifications were made: Microprocessors and Programming Languages were removed; Formal Languages was moved to be an option with Algorithms. This set of prerequisites cover the requirements of our focus area courses and are in line with Peer/ Peer+ universities. Additionally, a differential admit option to the PhD program was added due to changes at the Graduate School requiring programs without differential admission to transfer coursework formally into CAPP—a burden the faculty did not feel was appropriate for our program. Other BCoE programs also have such an option so we are now in line with the rest of the College. Finally, the GPA requirement was raised to be in line with other Peer/ Peer+ and BCoE programs; students that may have been direct PhD admits before with a lower GPA may now enter via completion of the MS. While this may decrease our PhD numbers initially, we foresee a stronger pool for better retention and research (and thus publications, grants, and post-graduate success).

For simplified differences between the direct and MS PhD admits, for Direct Admit PhD students, the program of study requires 63 credit hours (the same as our current program):

- 7 hours in the CS Core (Seminar & Theory)
- 15 hours in the Primary Specialization
- 9 hours in the Secondary Specialization
- 12 free course hours
- 20 dissertation hours

For PhD students with a previous masters, the program of study requires 32 credit hours post MS degree:

- 3–4 hours in the CS Core (Seminar & Theory)
- 6 hours in the Primary Specialization, of which at least 3 must be full graduate hours
- 3 hours in the Secondary Specialization
- 20 dissertation hours

Change of Structure: Fundamental courses were removed but added to our list of courses of specializations; they are also still listed a part of our Qualifying Exam structure in our Graduate Handbook. In addition, the structure of the specializations was modified to allow easier transition from MS to PhD from State via the choices made in the non-direct admit option. As we do currently, a list of suggested specialization will be kept in the department as a live document, allowing us to update it as faculty and department needs change. The courses previously in the Fundamental areas are all requirements for some specialization on the list.

4. Support

A letter of support from the Graduate Coordinator of the Department of Computer Science and Engineering is attached.

5. Proposed 4-Letter Abbreviation

The MSU registrar has adopted CS as the abbreviation of Computer Science degrees.

6. Effective Date

Spring 2019

MISSISSIPPI STATE UNIVERSITY
JAMES WORTH BAGLEY COLLEGE OF ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Dr.T.J. Jankun-Kelly
Associate Professor & Graduate Coordinator
tjk@cse.msstate.edu

November 7, 2018

University Committee on Courses & Curricula
218 Garner Hall
Mailstop 9702
Mississippi State University

UCCC Committee,

With this letter, the Department of Computer Science & Engineering requests changes to the admission requirements for our CS MS & PhD degrees and our CYSO MS degree. Similarly, we request changing the structure in terms of courses required for all three degrees to better serve our students and ensure they graduate in a timely fashion. Edits and classifications to our Catalog entries are also provided. These modifications were approved by the faculty of Computer Science & Engineering at our faculty meeting on Thursday, November 1st, 2018.

Please do not hesitate to contact me if additional information is needed.

Sincerely yours,

Dr. T.J. Jankun-Kelly
Director of Graduate Studies

MISSISSIPPI STATE UNIVERSITY
JAMES WORTH BAGLEY COLLEGE OF ENGINEERING

DEPARTMENT OF
COMPUTER SCIENCE & ENGINEERING

Andy D. Perkins, Ph.D.
Associate Professor
perkins@cse.msstate.edu

November 5, 2018

University Committee on Courses and Curricula
PO Box 5268
Mississippi State, MS 39762

Dr. Franz:

Please find attached a proposal to modify the MS and PhD degrees in Computer Science. The Computer Science and Engineering faculty voted unanimously to approve this addition at the faculty meeting on November 2, 2018.

Please feel free to contact me if there are any questions or concerns.

Sincerely,

Andy D. Perkins, Ph.D.
CSE Courses and Curricula Chair
Associate Professor

Christopher Archibald, Ph.D.
CSE Courses and Curricula Member
Assistant Professor

Joseph Crumpton, Ph.D.
CSE Courses and Curricula Member
Assistant Clinical Professor

Christopher McDaniel
CSE Courses and Curricula Member
Instructor