(1)

Missouri State University
Curricular Proposal – New Program
(MAJOR, OPTION, MINOR, CERTIFICATE, OR CERTIFICATION)

This form is to be used for internal Missouri State approval of any proposal for a new program involving two or more courses, including any new graduate program, new undergraduate major (whether comprehensive or non-comprehensive), new option within an existing program (whether graduate or undergraduate), new minor, new certificate, or new certification program.

New graduate programs, new undergraduate majors, and certificate programs involving more than 18 credit hours require approval by the CBHE as well as approval through the Missouri State curricular process. CBHE applications for such programs are processed through the Office of Institutional Research. All proposals for new programs requiring CBHE approval should progress through the Missouri State curricular process accompanied by a draft of the required CBHE documentation.

Department_____Computer Science_____ **Date**____Aug. 25, 2015_____

Attach on separate sheets (1) statement of rationale and objectives, (2) estimated costs for first five years, and (3) complete catalog description (including new courses and course changes pending approval). [Note: For new programs requiring CBHE approval, CBHE forms NP, PS, and PG will satisfy #1 and CBHE form FP will satisfy #2.]

PROPOSED PROGRAM____Create a second option to Computer Science degree, "Software Development"

Major____ Comprehensive Major____ Option_X_ Minor____ Certificate____ Certification____ Academic Rules____ Other____

Degree Applicability_____ Bachelor of Science_____

General Education Courses Required_____ECO 165, PSY 121, ENG 321__*Note: The two options have different General Education requirements.* Total Hours___9___

General Education Courses Recommended_____N/A_____ Total Hours__0_____

Requirements (including Admission) and Limitations for Specific Degree _____ Not applicable_____

Courses Required in Department_____See attached sheet_

Total Hours___38___

Courses Required in Other Departments_____See attached sheet_

Total Hours__22-26_____

Prerequisites for Required Courses____MTH 215(3), MTH 261(5), MTH 280(5)_*Note: The two options have different Prerequisites for Required Courses.*

Recommended Electives in Department___None_____

Total Hours___0_____

Recommended Electives in Other Departments____None_____

Total Hours___0_____

Limitations on Electives___ At most 6 hrs of CSC 399 may be counted. At most 3 hrs of CSC 596 may be counted __

DEPARTMENT Route according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty Senate. Attach New Program Resource Information form (FS-302a/06) and forward three typed, originally signed forms to one of the following (please mark all that apply). If the program needs to go through more than one committee/council, forward one additional form for each additional council/committee marked.

_____ **College Council**	(Send all new undergraduate programs through College Council as first step before forwarding either to PEC, CGEIP, or directly to Faculty Senate)
_____ **Professional Education Committee**	(All proposals affecting BS and MS in Education and Educational Specialist degrees)
_____ **Committee on General Education and Intercollegiate Programs**	(All general education and multi-college programs)
_____ **Graduate Council**	(All graduate programs)

Signature____Kenneth Tallman_____ **Date**__8/27/15_____

Department Head

(Routing on Reverse Side)

(Attachment to supplement cover sheet of this proposal)

(1)

Courses Required in Department CSC 130(3), 131(4), 232(4), 335(3), 338(2), 344(3), 365(3), 450(3), 482(1) , CSC 455 (3), Nine hours of CSC elective courses

Total Hours 38

Courses Required in Other Departments

MTH 215(3) or 261(5)*;

four hours from the following courses: BIO 121(4)*; BMS 110(3)* and 111(1)*; GLG 110(4), GRY 135(4), GRY 142(4), CHM 160(4) and CHM 161(1);

General Education courses ECO 165 (3), PSY 121(3), ENG 321(3);

additional science courses to total at least seven hours from among the following courses: BIO 121(4)*; BMS 110(3)* and 111(1)*; GLG 110(4), GRY 135(4), GRY 142(4), CHM 160(4) and CHM 161(1); and PHY 203(5); one of the following: MKT 350(3) or MGT 340(3) or COM 315(3) or PSY 305(3) or PSY 481(3).

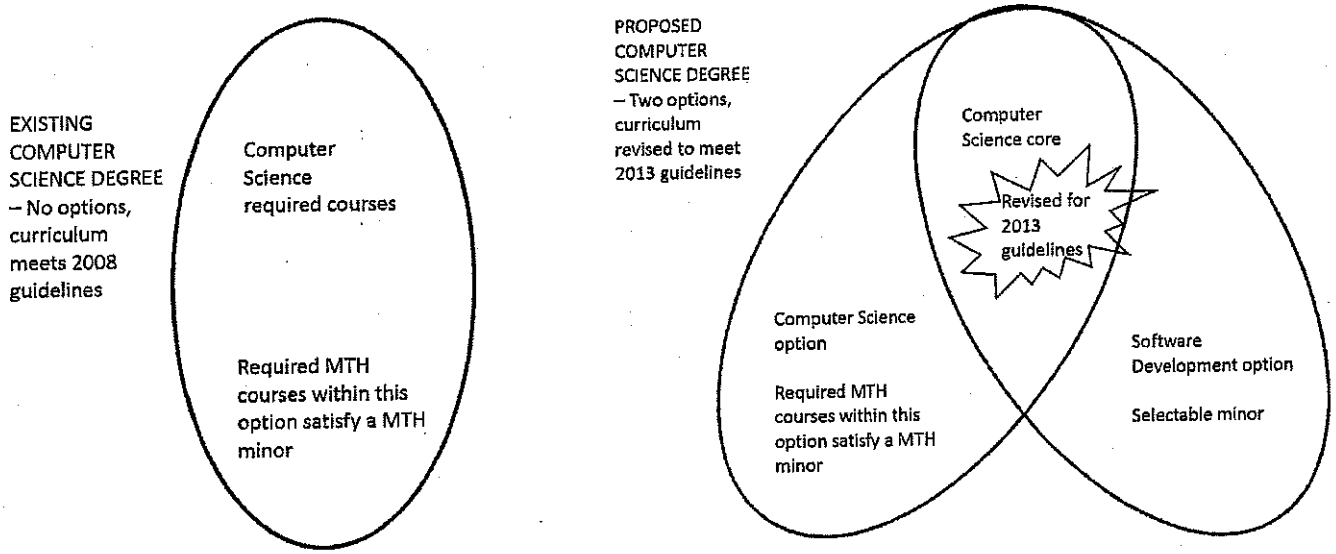
Select one of the following: MKT 350(3) or MGT 340(3) or COM 315(3) or PSY 305(3) or PSY 481(3). Other courses may be acceptable with department approval.

Total Hours 22-26

1. Statement of rationale and objectives

Prior to this proposal, the Computer Science degree program had no options but simply one degree program. This proposal creates two options to the Computer Science degree program: one option is effectively a restatement of the existing degree as an "option," and the second option is the new option of this proposal.

With simultaneous effectivity to this "second CS option" proposal, we will revise the core portion of the Computer Science degree to incorporate new curricular material to meet recommendations of professional CS advisory groups.



The ACM/IEEE 2013 Curriculum at https://www.acm.org/education/CS2013-final-report.pdf has modified levels of coverage of topics in Computer Science. The new guidelines include substantial reductions in some long-standing and traditional CS curricular topics, and some new material. At the same time, we seek to serve students with a different career focus than those who are served by the existing Computer Science degree plan.

Both these changes are contained in this proposed change to the Computer Science B.S. degree program, which creates two options while incorporating the new curricular recommendations.

The implementation of new curricular recommendations is a net reduction to the existing Computer Science degree, Computer Science option of 1 credit hour. Although new courses are added, some have also been deleted.

The proposed changes maintain ABET compliance applicable to the existing Computer Science degree (which as a result of this proposal becomes the Computer Science degree -- Computer Science option).

The objectives are to update the Computer Science curriculum to the most recent professional recommendation, and to serve a broader spectrum of student interests through a second option to the Computer Science major.

Upon approval of this proposal, a follow-up proposal will DELETE existing but no-longer-necessary CSC courses. (Delete CSC 460(3), 320(4), reduce 333(4) to 333(2) for a total of 9 hours).

The overall result of this proposal and its follow-up proposals will be to create a two-option Computer Science degree program while REDUCING core required hours by 1 credit hour.

2. Estimated costs for the first five years

Estimated costs for the first five years are minimal in that the course changes require no resources and cause a low extent of increase in teaching load (expected to be within the workload of existing faculty plus the faculty hired by a search authorized for 2015-2016).

- All but one course changes which accompany this proposal are curricular changes recommended recommended by professional bodies. Those changes would have been necessary in any event to maintain ABET accreditation.
- The implementation of new curricular recommendations is a net **reduction** of 1 credit hour to the hours to complete the existing ***Computer Science degree, Computer Science option***.
- The implementation of a new ***Computer Science degree, Software Development option*** adds one 3-hr course that is required for CS-SD option. That course is an elective to CS-CS option and is expected to additionally receive student registration from that demographic.

Teaching loads are expected to be within the normal workload of existing faculty plus the faculty hiring search which has already been authorized for 2015-2016.

3. Complete catalog description

Major(s)

Computer Science (Non-Comprehensive)

Bachelor of Science

	THESE COLUMNS ARE EXPLANATORY NOTES ----- NOT TO BE INCLUDED IN CATALOG!		
General Education Requirements - see General Education Program and Requirements section of catalog	Credit hours in the Computer Science option	Credit hours in the Applied Computing option	Notes
Major Requirements			
1. CSC 130(3), 131(4), 232(4), 335(3), 338(2), 344(3), 365(3), 450(3), 482(1)	26 hours	26 hours	42-44 cr hrs in the common part of the two degree options
2. Select nine additional hours from CSC 399, MTH/CSC 421, or CSC courses numbered 500 or higher, with at least six hours from courses other than CSC 399 and CSC 596. *(The rule "six hours from courses other than CSC 399 and CSC 596" applies to this set of courses only.)*	9	9	
3. Related mathematics requirements: select at least one of MTH 215(3) or 261(5)*	3-5	3-5	
4. Related science requirements: select at least four hours from the following courses: BIO 121(4)*; BMS 110(3)* and 111(1)*; GLG 110(4), GRY 135(4), GRY 142(4), CHM 160(4) and CHM 161(1); Other science or math courses may be acceptable with department approval.	4	4	
5. Public Affairs Capstone Experience will be fulfilled by completion of CSC 335(3), 365(3), and 482(1).			
6. Select one of the following options:			
a. Computer Science			
1. CSC 325(3), 333(2), 460(3)	8		29-31 cr hrs in the unique part of the Computer Science option. The number of hours is
2. Related mathematics requirements: MTH 215(3), 261(5)*, 280(5), MTH 345(3) or 540(3) *(Note: These required MTH courses and credit hours automatically satisfy the requirements for a minor in*	11-13 more		

Mathematics.)			deceptively high because it includes 16 hrs which complete a math minor.
3. PHY 203 (5).	5		
4. Select additional science or math courses other than to total at least fourteen hours among the following courses: BIO 121(4)*; BMS 110(3)* and 111(1)*; GLG 110(4), GRY 135(4), GRY 142(4); CHM 160(4) and CHM 161(1); PHY 204(5); and MTH courses numbered 400 or higher. Other science or math courses may be acceptable with department approval.	5 more		
b. Software Development			
1. CSC 455 (3).		3	12-14 cr hrs in the unique part of the Software Development option
2. Select three additional hours from *eligible* CSC courses numbered 500 or higher excluding 596. At most 6 hrs of CSC 399 may be counted. *(The rule "At most 6 hrs of CSC 399 may be counted." applies to this degree option, not all degree options.)*		3	
3. ECO 165 (3), PSY 121(3), ENG 321(3). *Each of these courses may also count toward or satisfy General Education requirements.*		(no additional required hours because these are GenEd courses.)	
4. Select additional science courses to total at least seven hours from among the following courses: BIO 121(4)*; BMS 110(3)* and 111(1)*; GLG 110(4), GRY 135(4), GRY 142(4), CHM 160(4) and CHM 161(1); and PHY 203(5). Other science or math courses may be acceptable with department approval.		3-5 more	
5. Select one of the following: MKT 350(3) or MGT 340(3) or COM 315(3) or PSY 305(3) or PSY 481(3). Other courses may be acceptable with department approval.		3	
7. Minor Required *The "Computer Science" option contains required courses that satisfy a Math minor.*	No further hours are included here because MTH minor is met within required courses	Number of hours varies with choice of minor. 17-22?	
8. General Baccalaureate Degree Requirements - see General Baccalaureate Degree Requirements section of catalog			
	TOTAL Credit hours in the Computer Science option 71-75	TOTAL Credit hours in the Applied Computing option 71-80	

** May also count toward General Education requirements*

(Attachment for new course pending approval)

(1)

CSC 338 Parallel And Distributed Computing

Prerequisite: "C" or better in CSC 232; and CSC 344 or concurrent enrollment.
Introduction to parallel and distributed computing through algorithms, strategies for problem decomposition, system architecture, implementation strategies, and performance analysis.
Credit hours: 2
Lecture contact hours: 2
Lab contact hours: 0
Typically offered: Fall, Spring

CSC 344 Computer Systems Fundamentals

Catalog description:
Prerequisite: CSC 232
An integrated introduction to computer systems fundamentals. Topics include computer architecture and major components, operating system concepts and implementation techniques (processes, threads, memory management, and distributed systems), and network theory, concepts and techniques.
Credit hours: 3
Lecture contact hours: 3
Lab contact hours: 0
Typically offered: Fall, Spring

CSC 455 Software Quality Assurance and Project Management
Pre-requisite: CSC 232
Credit Hours: 3
Periodicity: Fall
Catalog Description:
A broad coverage of software quality and testing including quality assurance, inspections and reviews, software validation and verification, various testing techniques, and related tools. Other topics are essential software project planning steps, cost estimation, productivity metrics, release and configuration management concepts. May be taught concurrently with CSC 655. Cannot receive credit for both CSC 455 and CSC 655.
Credit hours: 3
Lecture contact hours: 3
Lab contact hours: 0
Typically offered: Fall

(1)

FS-302a/06

NEW PROGRAM RESOURCE INFORMATION

Program Title and Degree: _____Computer Science, Software Development Option_____

Department: _____ Computer Science _____

Attach on separate sheets (1) statement of rationale and objectives, (2) estimated costs for first five years, and (3) complete catalog description (including new courses and course changes pending approval). [Note: For new programs requiring CBHE approval, CBHE forms NP, PS, and PG will satisfy #1 and CBHE form FP will satisfy #2.]

1. Is another program being deleted or altered? _____Yes ___X_No

Explanatory notes to the statement that no other program is being altered

Prior to this proposal, the Computer Science degree program had no options but simply one degree program. This proposal creates two options to the Computer Science degree program: one option is effectively a restatement of the existing degree as an "option," and the second option is the new option of this proposal.

With simultaneous effectivity to this "second CS option" proposal, we will revise the core portion of the Computer Science degree to incorporate new curricular material to meet recommendations of professional CS advisory groups.

This proposal ADDS three courses required for one or both degree options, totalling 8 credit hours that support the two-option degree plan and incorporate the new curricular material. (Add CSC 344(3), 338(2), 455(3) for a total of 8 hours).

Upon approval of this proposal, a follow-up proposal will DELETE existing but no-longer-necessary CSC courses. (Delete CSC 460(3), 320(4), reduce 333(4) to 333(2) for a total of 9 hours).

The overall result of this proposal and its follow-up proposals will be to create a two-option Computer Science degree program while REDUCING core required hours by 1 credit hour.

2. If this program affects other departments or colleges, has a memo showing how it will affect them been attached to the proposal? _____Yes _____No

3. What justification is being provided to support this proposal? (Current research, accreditation, certification or licensing requirements, other.)

The existing Computer Science degree is accredited by the Computing Accreditation Commission of ABET. Minimal ABET requirements are Math courses that make a Math minor, so the existing degree contains little flexibility and high math content. As a result, students who are interested in Computer Science with a broader scope, or a different scope, are not served by the existing Computer Science degree program. Student retention rates are low in part because students seek a program with a wider scope. We believe that the proposed degree option will increase retention and graduation of existing students by providing a second path to Computer Science degree completion with a broader focus and reduced level of mathematics.

4. If your response to #3 refers to existing or potential student demand, please indicate the activities undertaken to estimate or verify the potential or existing demand for this new program.

Multiple news reports, studies, and employer interest in MSU CSC graduates demonstrate the demand for graduates in computer science fields. At the same time, an overwhelming number of student comments have been that they are interested in computer science and software development but are for many reasons not willing to complete the high extent of math required in our existing program. We have surveyed our Advisory Board, consisting of alumni and friends in management positions in the computer industry, and they have endorsed the creation of the Computer Science degree option with a broader focus and reduced level of mathematics as described here.

5. What are the present/future projected enrollments for this program?

1st year___25__ 3rd year___80___

In five years, how many students must be:
a) declared minors to justify this new minors continuation _____
b) declared majors to justify this new majors continuation __50___

6. Which of the following would be needed to implement the proposed program? (Check all that apply.) Individuals responsible for specific areas outside of your college must be consulted.

Additional library holdings?	_____Yes __X_No
Additional technology or other supplies?	_____Yes __X_No
Additional or remodeled facilities?	_____Yes __X_No
Additional travel funds?	_____Yes __X_No
Additional faculty?	_____Yes __X_No
Additional support staff?	_____Yes __X_No
Other additional expenses?	_____Yes __X_No

7. Have the individuals responsible for allocation of these resources been contacted to ensure the availability of these resources by the time the program is implemented?
_____Yes _____No _____Yes, but cannot ensure availability

8. Referring to question 6, if additional faculty are not required, please provide a statement as to how faculty will be made available to teach proposed new courses, if any, or to manage increased enrollments in existing courses which are to be included in the proposed new program.

Estimated costs for the first five years are minimal in that the course changes require no resources and cause a low extent of increase in teaching load (expected to be within the workload of existing faculty plus the faculty hired by a search authorized for 2015-2016).

- All but one course changes which accompany this proposal are curricular changes recommended recommended by professional bodies. Those changes would have been necessary in any event to maintain ABET accreditation.
- The implementation of new curricular recommendations is a net **reduction** of 1 credit hour to the hours to complete the existing ***Computer Science degree, Computer Science option.***
- The implementation of a new ***Computer Science degree, Software Development option*** adds one 3-hr course that is required for CS-SD option. That course is an elective to CS-CS option and is expected to additionally receive student registration from that demographic.

(1)

Teaching loads are expected to be within the normal workload of existing faculty plus the faculty hiring search which has already been authorized for 2015-2016.

9. If the responses to question 1 and any parts of question 6 other than additional faculty are "no," please provide a statement as to how the department/school (or center or college) will manage the enrollment figures provided in question 5.

Not applicable

The signature of the individuals listed below ensures that the items above have been addressed and the resources needed will be made available when the program is implemented.

Kenneth Vollman

Department Head

College Dean

Missouri State University
CURRICULAR PROPOSAL
NEW COURSE (or new REGULAR SECTION of an existing variable content course)

Department Computer Science **Date** 8/26/2015

Check one: __X__ **New COURSE** ____ **New REGULAR (i.e. permanent) SECTION of an existing variable content course. If a new regular section of an existing variable topics course, to what existing course is it to be attached?** _____

Course Code CSC **Course Number** 338 **Course Title** Parallel and Distributed Computing

PROPOSED CATALOG DESCRIPTION

CSC 338 Parallel and Distributed Computing
Prerequisite: "C" or better in CSC 232; and CSC 344 or concurrent enrollment. Introduction to parallel and distributed computing through algorithms, strategies for problem decomposition, system architecture, implementation strategies, and performance analysis.
Credit hours: 2 Lecture contact hours: 2 Lab contact hours: 0
Typically offered: Fall, Spring

PURPOSE OF COURSE

Required course for all Computer Science majors

RELATIONSHIP TO OTHER DEPARTMENTS

None

DEPARTMENT: Route according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Attach New Course Resource Information form (FS 300a/05) and forward three typed, originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If the course needs to go through more than one council/committee forward one additional form for each additional council/committee marked.

__X__ **College Council**	(All new course proposals numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/ council or directly to the Faculty Senate if no further committee approval is needed.)
_____ **Professional Education Committee**	(Considers all new courses affecting BS and MS in Education and Educational Specialist degrees)
_____ **Committee on General Education and Intercollegiate Programs**	(Considers all general education and multi-college new course proposals)
_____ **Graduate Council**	(Considers all 600-, 700-, and 800-level new courses)

*If the course needs to go through more than one council/committee, forward one additional form for each additional council/committee marked.

Signature Kenneth Volkman **Date** 8/25/15
Department Head

(Routing on Reverse Side)

(2)

NEW COURSE RESOURCE INFORMATION

Department Computer Science Date 8/26/2015

Course Number and Title CSC 338 Parallel and Distributed Computing

Anticipated Average Enrollment 30 Maximum Enrollment Limit 50

Faculty Load Assignment 2 equated Hours

1 Is another course being deleted? If so, give course number and title.

No

2 What will this course require in the way of:

Additional library holdings? None

Additional computer resources? None

Additional or remodeled facilities? None

Additional equipment or supplies? None

Additional travel funds? None

Additional faculty--general vs specialized? None

Other additional expenses? None

3 If additional faculty are not required, how will faculty be made available to teach this course?

CSC 333 is being reduced from 4 cr hrs to 2 cr hrs. The net increase of 1 cr hr is expected to be within typical faculty load. Faculty hiring search is in progress, 2015-2016.

List names of current faculty qualified to teach this course: Dr. Razib Iqbal

4 What is the anticipated source of students for this course? (If from within the department, will students be taking this course in addition to or in place of other courses? If from outside the department, which courses in other departments would most likely be affected?)

Required course for all Computer Science majors. Students will take this course in addition to CSC 333, which was formerly 4 cr. hrs. and is being reduced to 2 cr. hrs.

5 Other comments:

CSC 333 is being reduced from 4 cr hrs to 2 cr hrs

(2)

CSC 338 Parallel And Distributed Computing

Prerequisite: "C" or better in CSC 232; and CSC 344 or concurrent enrollment.
Introduction to parallel and distributed computing through algorithms, strategies for problem decomposition, system architecture, implementation strategies, and performance analysis.
Credit hours: 2
Lecture contact hours: 2
Lab contact hours: 0
Typically offered: Fall, Spring

Parallel Computing Topics:

- Goals of parallelism (e.g., throughput) versus concurrency (e.g., controlling access to shared resources)
- Parallelism, communication, and coordination
- Need for synchronization
- Data races (simultaneous read/write or write/write of shared state)
- Critical paths, work and span, and the relation to Amdahl's law
- Speed-up and scalability
- Naturally (embarrassingly) parallel algorithms

Distributed Computing Topics:

- Faults
- Distributed message sending
- Distributed system design tradeoffs
- Distributed service design
- Core distributed algorithms
- Internet-Scale computing
- Cloud services
- Virtualization
- Cloud-based data storage

Parallel Computing Learning outcomes:

- Distinguish using computational resources for a faster answer from managing efficient access to a shared resource.
- Distinguish multiple sufficient programming constructs for synchronization that may be interimplementable but have complementary advantages.
- Distinguish data races from higher level races.
- Distinguish network faults from other kinds of failures.
- Explain why synchronization constructs such as simple locks are not useful in the presence of distributed faults
- Write a program that performs any required marshaling and conversion into message units, such as packets, communicate interesting data between two hosts.
- Measure the observed throughput and response latency across hosts in a given network.
- Explain why no distributed system can be simultaneously consistent, available, and partition tolerant.

Distributed Computing Learning outcomes:

- Implement a simple server -- for example, a spell checking service.
- Explain the tradeoffs among overhead, scalability, and fault tolerance when choosing a stateful v. stateless design for a given service.
- Describe the scalability challenges associated with a service growing to accommodate many clients, as well as those associated with a service only transiently having many clients.
- Give examples of problems for which consensus algorithms such as leader election are required.
- Discuss the importance of elasticity and resource management in cloud computing.
- Explain strategies to synchronize a common view of shared data across a collection of devices.
- Explain the advantages and disadvantages of using virtualized infrastructure.
- Deploy an application that uses cloud infrastructure for computing and/or data resources.
- Appropriately partition an application between a client and resources.

Textbook:
Distributed Algorithms: An Intuitive Approach, by Wan Fokkink. MIT Press, 2013. ISBN-10: 0262026775, ISBN-13: 978-0262026772

Introduction to High Performance Computing for Scientists and Engineers, by Georg Hager. CRC Press, 2010. ISBN-10: 143981192X, ISBN-13: 978-1439811924.

Grade Weighting:

Assignments (six, individual)	25%	*(Drop one of the assignments)*
Projects (three, group)	25%	
Biweekly "checkup"	30%	*(Every 2nd Fri., all questions supplied in adv.)*
Midterm exam	10%	
Final exam	10%	

Attendance: Attendance is not recorded. Attendance is expected at exams (announced one week in advance) and Biweekly "checkup" (every 2nd Friday beginning Aug. 28). In any event you are responsible for any information presented and announcements made in class. Late arrival and early departure is discouraged as rude to your fellow computer scientists.

Nondiscrimination: Missouri State University is an equal opportunity/affirmative action institution, and maintains a grievance procedure available to any person who believes he or she has been discriminated against. At all times, it is your right to address inquiries or concerns about possible discrimination to the Office for Equity and Diversity, Park Central Office Building, 117 Park Central Square, Suite 111, (417) 836-4252. Other types of concerns (i.e., concerns of an academic nature) should be discussed directly with your instructor and can also be brought to the attention of your instructor's Department Head. Please visit the OED website at www.missouristate.edu/equity/.

Disability Accommodation: To request academic accommodations for a disability, contact the Director of the Disability Resource Center, Plaster Student Union, Suite 405, (417) 836-4192 or (417) 836-6792 (TTY), www.missouristate.edu/disability. Students are required to provide

documentation of disability to the Disability Resource Center prior to receiving accommodations. The Disability Resource Center refers some types of accommodation requests to the Learning Diagnostic Clinic, which also provides diagnostic testing for learning and psychological disabilities. For information about testing, contact the Director of the Learning Diagnostic Clinic, (417) 836-4787, http://psychology.missouristate.edu/ldc.

Emergency Response
At the first class meeting, students should become familiar with a basic emergency response plan through a dialogue with the instructor that includes a review and awareness of exits specific to the classroom and the location of evacuation centers for the building. Students with disabilities impacting mobility should discuss the approved accommodations for emergency situations and additional options when applicable with the instructor. For more information go to http://www.missouristate.edu/safetran/51597.htm and http://www.missouristate.edu/safetran/erp.htm.

Audio and video recording course activity: Students may make audio or video recordings of course activity. However, the redistribution of audio or video recordings from the course to individuals who are not students in the class is prohibited without the express permission of the faculty member and any of the students who are recorded.

Academic Integrity Policy: Missouri State University is a community of scholars committed to developing educated persons who accept the responsibility to practice personal and academic integrity. You are responsible for knowing and following the university's student honor code, *Student Academic Integrity Policies and Procedures*, available at www.missouristate.edu/policy/academicintegritystudents.htm and also available at the Reserves Desk in Meyer Library. Any student participating in any form of academic dishonesty will be subject to sanctions as described in this policy.

Any of the following acts constitute academic dishonesty:

Cheating: refers to using or attempting to use unauthorized materials, information, or study aids in any academic exercise.

Fabrication: refers to unauthorized falsification or invention of any information (including research data) or any citation in any academic exercise; "misconduct in research" refers to any violation of ethical guidelines for attributing credit and authorship in research endeavors, non-compliance with established research policies, or other violations of ethical research practice.

Plagiarism: includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work or sections of a work of another person without full and clear acknowledgement. This includes any material copied directly or paraphrased from the Internet. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials, including material taken from or ordered through the Internet.

Facilitating academic dishonesty: assisting or attempting to assist another to violate any provision of the Missouri State University Academic Integrity Policy, whether or not that action is associated with any particular course.

Exchange of answers or code during an assignment or test will be considered to be cheating and plagiarism. Instructor reserves the right to use software analysis tools to detect plagiarism in source code.

The consequence to all parties for the first offence will be zero credit for the test/assignment, and for the second offence a failing grade with designation of academic dishonesty.

No grade-related sanction may be imposed until a student admits misconduct and/or forgoes appeal rights, or is found in violation by the Academic Integrity Council. Each student should carefully review the Student Academic Integrity Policies and Procedures: http://www.missouristate.edu/assets/provost/StudentAcademicIntegrity.pdf; also available at the Reserves Desk (Meyer Library), and in abbreviated form in the Missouri State University Undergraduate Catalog.

Policy on Use of Cell Phones and/or Other Communication Devices in Classes: As a member of the learning community, each student has a responsibility to other students who are members of the community. When cell phones or pagers ring and students respond in class or leave class to respond, it disrupts the class. Therefore, the Office of the Provost prohibits the use by students of cell phones, pagers, PDAs, or similar communication devices during scheduled classes. All such devices must be turned off or put in a silent (vibrate) mode and ordinarily should not be taken out during class. Given the fact that these same communication devices are an integral part of the University's emergency notification system, an exception to this policy would occur when numerous devices activate simultaneously. When this occurs, students may consult their devices to determine if a university emergency exists. If that is not the case, the devices should be immediately returned to silent mode and put away. Other exceptions to this policy may be granted at the discretion of the instructor.

Electronic device policy: Laptop computers, smartphones, etc., will generally NOT be allowed. If it is critical to you to use a device for note-taking, please see me. Electronic devices must comply with the cell phone policy in their capability as a "communicative device."

Policy on Use of iPods, MP3 Players, or Other Entertainment Devices in Classes: Students have a responsibility to demonstrate respect and consideration of other students, as well as their instructors. The use of entertainment devices such as iPods, MP3 players, etc., is, therefore, strictly prohibited during classes. All such devices must be turned off and put away, and cannot be taken out during class.

Academic Regulations: Students should familiarize themselves with Academic Regulations by visiting the Student handbook online at http://www.MissouriState.edu/recreg/acreg.html.

Dropping a class: It is your responsibility to understand the University's procedure for dropping a class. If you stop attending this class but do not follow proper procedure for dropping the class, you will receive a failing grade and will also be financially obligated to pay for the class. For information about dropping a class or withdrawing from the university, contact the Office of the Registrar at 836-5520.

Important Dates: The Academic Calendar http://calendar.missouristate.edu/academic.asp contains information such as drop deadlines, etc. Important class events such as exams will be announced at least one week in advance. Due dates for assignments will be given with the assignment itself.

(3)

Missouri State University
CURRICULAR PROPOSAL
NEW COURSE (or new REGULAR SECTION of an existing variable content course)

Department Computer Science **Date** 8/26/2015

Check one: __X__ **New COURSE** ____ **New REGULAR (i.e. permanent) SECTION of an existing variable content course. If a new regular section of an existing variable topics course, to what existing course is it to be attached?** _____

Course Code CSC **Course Number** 344 **Course Title** Computer Systems Fundamentals

PROPOSED CATALOG DESCRIPTION

CSC 344 Computer Systems Fundamentals
Prerequisite: CSC 232. An integrated introduction to computer systems fundamentals. Topics include computer architecture and major components, operating system concepts and implementation techniques (processes, threads, memory management, and distributed systems), and network theory, concepts and techniques.
Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0
Typically offered: Fall, Spring

PURPOSE OF COURSE

Required course for all Computer Science majors

RELATIONSHIP TO OTHER DEPARTMENTS

None

DEPARTMENT: Route according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Attach New Course Resource Information form (FS 300a/05) and forward three typed, originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If the course needs to go through more than one council/committee forward one additional form for each additional council/committee marked.

__X__ **College Council**	(All new course proposals numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/ council or directly to the Faculty Senate if no further committee approval is needed.)
_____ **Professional Education Committee**	(Considers all new courses affecting BS and MS in Education and Educational Specialist degrees)
_____ **Committee on General Education and Intercollegiate Programs**	(Considers all general education and multi-college new course proposals)
_____ **Graduate Council**	(Considers all 600-, 700-, and 800-level new courses)

*If the course needs to go through more than one council/committee, forward one additional form for each additional council/committee marked.

Signature Kenneth Vollmar **Date** 8/25/15
Department Head

(Routing on Reverse Side)

(3)

NEW COURSE RESOURCE INFORMATION

Department Computer Science Date 8/26/2015

Course Number and Title CSC 344 Computer Systems Fundamentals

Anticipated Average Enrollment 30 Maximum Enrollment Limit 50

Faculty Load Assignment 3 equated Hours

1 Is another course being deleted? If so, give course number and title.

No

2 What will this course require in the way of:

Additional library holdings? None

Additional computer resources? None

Additional or remodeled facilities? None

Additional equipment or supplies? None

Additional travel funds? None

Additional faculty--general vs specialized? None

Other additional expenses? None

3 If additional faculty are not required, how will faculty be made available to teach this course?

Opportunity made available by deletion of other courses CSC 320 and CSC 460

List names of current faculty qualified to teach this course: Dr. Yang Wang, Dr. Hui Liu

4 What is the anticipated source of students for this course? (If from within the department, will students be taking this course in addition to or in place of other courses? If from outside the department, which courses in other departments would most likely be affected?)

Computer Science Majors. Students will take this course in place of deleted courses CSC 320 and CSC 460.

5 Other comments:

CSC 320 and CSC 460 are being deleted

(3)

CSC 344 Computer Systems Fundamentals

Catalog description:
Prerequisite: CSC 232
An integrated introduction to computer systems fundamentals. Topics include computer architecture and major components, operating system concepts and implementation techniques (processes, threads, memory management, and distributed systems), and network theory, concepts and techniques.
Credit hours: 3
Lecture contact hours: 3
Lab contact hours: 0
Typically offered: Fall, Spring

Topics for Architecture

- Basic building blocks and components of a computer (gates, flip-flops, registers, interconnections;
- Datapath + Control + Memory)
- Hardware as a computational paradigm: Fundamental logic building blocks; Logic expressions, minimization, sum of product forms
- Application-level sequential processing: single thread
- Simple application-level parallel processing: request level (web services/client-server/distributed), single thread per server, multiple threads with multiple servers
- Basic concept of pipelining, overlapped processing stages
- Basic concept of scaling: going faster vs. handling larger problems

Topics for Networking

- Organization of the Internet (Internet Service Providers, Content Providers, etc.)
- Switching techniques (e.g., circuit, packet)
- Physical pieces of a network, including hosts, routers, switches, ISPs, wireless, LAN, access point, and firewalls
- Layering principles (encapsulation, multiplexing)
- Roles of the different layers (application, transport, network, datalink, physical)

Topics for Operating Systems

- Role and purpose of the operating system
- Functionality of a typical operating system
- Mechanisms to support client-server models, hand-held devices
- Design issues (efficiency, robustness, flexibility, portability, security, compatibility)
- Influences of security, networking, multimedia, windowing systems

Learning Outcomes for Architecture

1. List commonly encountered patterns of how computations are organized.
2. Describe the basic building blocks of computers and their role in the historical development of computer architecture.
3. Articulate the differences between single thread vs. multiple thread, single server vs. multiple server models, motivated by real world examples

4. Articulate the concept of strong vs. weak scaling, i.e., how performance is affected by scale of problem vs. scale of resources to solve the problem. This can be motivated by the simple, real-world examples.
5. Design a simple logic circuit using the fundamental building blocks of logic design.

Learning Outcomes for Networking

1. Articulate the organization of the Internet.
2. List and define the appropriate network terminology.
3. Describe the layered structure of a typical networked architecture.
4. Identify the different types of complexity in a network (edges, core, etc.).

Learning Outcomes for Operating Systems

1. Explain the objectives and functions of modern operating systems.
2. Analyze the tradeoffs inherent in operating system design.
3. Describe the functions of a contemporary operating system with respect to convenience, efficiency, and the ability to evolve.
4. Discuss networked, client-server, distributed operating systems and how they differ from single user operating systems.
5. Identify potential threats to operating systems and the security features design to guard against them.

Textbook:
Ramachandran and Leahy Jr., *Computer Systems: An Integrated Approach to Architecture and Operating Systems*, Addison-Wesley, 2010.

Grade Weighting:

Assignments (six, individual)	25%	*(Drop one of the assignments)*
Projects (three, group)	25%	
Biweekly "checkup"	30%	*(Every 2nd Fri., all questions supplied in adv.)*
Midterm exam	10%	
Final exam	10%	

Attendance: Attendance is not recorded. Attendance is expected at exams (announced one week in advance) and Biweekly "checkup" (every 2nd Friday beginning Aug. 28). In any event you are responsible for any information presented and announcements made in class. Late arrival and early departure is discouraged as rude to your fellow computer scientists.

Nondiscrimination: Missouri State University is an equal opportunity/affirmative action institution, and maintains a grievance procedure available to any person who believes he or she has been discriminated against. At all times, it is your right to address inquiries or concerns about possible discrimination to the Office for Equity and Diversity, Park Central Office Building, 117 Park Central Square, Suite 111, (417) 836-4252. Other types of concerns (i.e., concerns of an academic nature) should be discussed directly with your instructor and can also be brought to the attention of your instructor's Department Head. Please visit the OED website at www.missouristate.edu/equity/.

Disability Accommodation: To request academic accommodations for a disability, contact the Director of the Disability Resource Center, Plaster Student Union, Suite 405, (417) 836-4192 or (417) 836-6792 (TTY), www.missouristate.edu/disability. Students are required to provide documentation of disability to

the Disability Resource Center prior to receiving accommodations. The Disability Resource Center refers some types of accommodation requests to the Learning Diagnostic Clinic, which also provides diagnostic testing for learning and psychological disabilities. For information about testing, contact the Director of the Learning Diagnostic Clinic, (417) 836-4787, http://psychology.missouristate.edu/ldc.

Emergency Response
At the first class meeting, students should become familiar with a basic emergency response plan through a dialogue with the instructor that includes a review and awareness of exits specific to the classroom and the location of evacuation centers for the building. Students with disabilities impacting mobility should discuss the approved accommodations for emergency situations and additional options when applicable with the instructor. For more information go to http://www.missouristate.edu/safetran/51597.htm and http://www.missouristate.edu/safetran/erp.htm.

Audio and video recording course activity: Students may make audio or video recordings of course activity. However, the redistribution of audio or video recordings from the course to individuals who are not students in the class is prohibited without the express permission of the faculty member and any of the students who are recorded.

Academic Integrity Policy: Missouri State University is a community of scholars committed to developing educated persons who accept the responsibility to practice personal and academic integrity. You are responsible for knowing and following the university's student honor code, *Student Academic Integrity Policies and Procedures*, available at www.missouristate.edu/policy/academicintegritystudents.htm and also available at the Reserves Desk in Meyer Library. Any student participating in any form of academic dishonesty will be subject to sanctions as described in this policy.

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Fabrication: refers to unauthorized falsification or invention of any information (including research data) or any citation in any academic exercise; "misconduct in research" refers to any violation of ethical guidelines for attributing credit and authorship in research endeavors, non-compliance with established research policies, or other violations of ethical research practice.

Plagiarism: includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work or sections of a work of another person without full and clear acknowledgement. This includes any material copied directly or paraphrased from the Internet. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials, including material taken from or ordered through the Internet.

Facilitating academic dishonesty: assisting or attempting to assist another to violate any provision of the Missouri State University Academic Integrity Policy, whether or not that action is associated with any particular course.

Exchange of answers or code during an assignment or test will be considered to be cheating and plagiarism. Instructor reserves the right to use software analysis tools to detect plagiarism in source code.

The consequence to all parties for the first offence will be zero credit for the test/assignment, and for the second offence a failing grade with designation of academic dishonesty.

No grade-related sanction may be imposed until a student admits misconduct and/or forgoes appeal rights, or is found in violation by the Academic Integrity Council. Each student should carefully review the Student Academic Integrity Policies and Procedures: http://www.missouristate.edu/assets/provost/StudentAcademicIntegrity.pdf; also available at the Reserves Desk (Meyer Library), and in abbreviated form in the Missouri State University Undergraduate Catalog.

Policy on Use of Cell Phones and/or Other Communication Devices in Classes: As a member of the learning community, each student has a responsibility to other students who are members of the community. When cell phones or pagers ring and students respond in class or leave class to respond, it disrupts the class. Therefore, the Office of the Provost prohibits the use by students of cell phones, pagers, PDAs, or similar communication devices during scheduled classes. All such devices must be turned off or put in a silent (vibrate) mode and ordinarily should not be taken out during class. Given the fact that these same communication devices are an integral part of the University's emergency notification system, an exception to this policy would occur when numerous devices activate simultaneously. When this occurs, students may consult their devices to determine if a university emergency exists. If that is not the case, the devices should be immediately returned to silent mode and put away. Other exceptions to this policy may be granted at the discretion of the instructor.

Electronic device policy: Laptop computers, smartphones, etc., will generally NOT be allowed. If it is critical to you to use a device for note-taking, please see me. Electronic devices must comply with the cell phone policy in their capability as a "communicative device."

Policy on Use of iPods, MP3 Players, or Other Entertainment Devices in Classes: Students have a responsibility to demonstrate respect and consideration of other students, as well as their instructors. The use of entertainment devices such as iPods, MP3 players, etc., is, therefore, strictly prohibited during classes. All such devices must be turned off and put away, and cannot be taken out during class.

Academic Regulations: Students should familiarize themselves with Academic Regulations by visiting the Student handbook online at http://www.MissouriState.edu/recreg/acreg.html.

Dropping a class: It is your responsibility to understand the University's procedure for dropping a class. If you stop attending this class but do not follow proper procedure for dropping the class, you will receive a failing grade and will also be financially obligated to pay for the class. For information about dropping a class or withdrawing from the university, contact the Office of the Registrar at 836-5520.

Important Dates: The Academic Calendar http://calendar.missouristate.edu/academic.asp contains information such as drop deadlines, etc. Important class events such as exams will be announced at least one week in advance. Due dates for assignments will be given with the assignment itself.

(4)

Missouri State University
CURRICULAR PROPOSAL
NEW COURSE (or new REGULAR SECTION of an existing variable content course)

Department Computer Science **Date** 8/26/2015

Check one: __X__**New COURSE** ____**New REGULAR (i.e. permanent) SECTION of an existing variable content course. If a new regular section of an existing variable topics course, to what existing course is it to be attached?** _____

Course Code CSC **Course Number** 455 **Course Title** Software Quality Assurance and Project Management

PROPOSED CATALOG DESCRIPTION

CSC 455 Software Quality Assurance and Project Management
Prerequisite: CSC 232. A broad coverage of software quality and testing including quality assurance, inspections and reviews, software validation and verification, various testing techniques, and related tools. Other topics are essential software project planning steps, cost estimation, productivity metrics, release and configuration management concepts. May be taught concurrently with CSC 655. Cannot receive credit for both CSC 455 and CSC 655.

Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0
Typically offered: Fall

PURPOSE OF COURSE

Support new option in Computer Science degree in which students obtain professional-level skills for software development.

RELATIONSHIP TO OTHER DEPARTMENTS

None

DEPARTMENT: Route according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Attach New Course Resource Information form (FS 300a/05) and forward three typed, originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If the course needs to go through more than one council/committee forward one additional form for each additional council/committee marked.

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_____ **Graduate Council**	(Considers all 600-, 700-, and 800-level new courses)

*If the course needs to go through more than one council/committee, forward one additional form for each additional council/committee marked.

Signature Kenneth Vollmar Date 8/25/15
Department Head

(Routing on Reverse Side)

(4)

FS-2005

NEW COURSE RESOURCE INFORMATION

Department Computer Science Date 8/26/2015

Course Number and Title CSC 455 Software Quality Assurance and Project Management

Anticipated Average Enrollment 30 Maximum Enrollment Limit 50

Faculty Load Assignment 3 equated Hours

1 Is another course being deleted? If so, give course number and title.

No

2 What will this course require in the way of:

Additional library holdings? None

Additional computer resources? None

Additional or remodeled facilities? None

Additional equipment or supplies? None

Additional travel funds? None

Additional faculty--general vs specialized? None

Other additional expenses? None

3 If additional faculty are not required, how will faculty be made available to teach this course?

Faculty with this expertise has recently been hired. Additional faculty hiring search is underway 2015-2016.

List names of current faculty qualified to teach this course: Dr. Razib Iqbal

4 What is the anticipated source of students for this course? (If from within the department, will students be taking this course in addition to or in place of other courses? If from outside the department, which courses in other departments would most likely be affected?)

Students in the Software Development option of the Computer Science major (now in proposal). Students will take this course in addition to other courses.

5 Other comments:

The graduate level parallel course CSC 655 is in submission.

(4)

Computer Science Department

Missouri State.

Course Code-Number: CSC-455 / CSC-655

Course Name: Software Quality Assurance and Project Management

Pre-requisite: CSC 232

Credit Hours: 3

Periodicity: Fall

Catalog Description:

A broad coverage of software quality and testing including quality assurance, inspections and reviews, software validation and verification, various testing techniques, and related tools. Other topics are essential software project planning steps, cost estimation, productivity metrics, release and configuration management concepts. May be taught concurrently with CSC 655. Cannot receive credit for both CSC 455 and CSC 655.
Credit hours: 3
Lecture contact hours: 3
Lab contact hours: 0
Typically offered: Fall

- **Purpose of the course:**

  Upon completion of this course, students will have the ability to plan and manage small to medium software development projects within a team setting, apply industry best practices, conduct effective and efficient inspections, design and implement comprehensive test plans, apply appropriate testing techniques, ensure test coverage and yield, use statistical techniques, and assess a software process to evaluate how effective it is at promoting overall software quality within a given scope, cost and time.

- **method for evaluating student performance**:

  Case studies of real industrial projects and applied techniques, project and assignments that include use of automated tools, testing of a wide variety of software, application of testing techniques, and comparison and analysis of software inspections.

- **Topics to be covered:**

Module 01: QA Introduction	Background, history, and basic concepts of software quality assurance and testing.
Module 02: Test Coverage	Unit testing, Logic testing, Syntax testing, Graph coverage, Control flow testing, Data flow testing, Domain testing.

Module 03: System Testing	Test categories, Functional testing, Integration testing, Regression testing, Ad hoc testing, Performance testing, Test design & planning, Test execution, Acceptance testing, Test automation.
Module 04: Software Project Management	Capability maturity model, Software team organization, People and organizational issues in software development, Size-Effort-Duration estimation, Metrics & measurements, Quality standards, Project tracking, Software contracts and Intellectual Property.

- **Prescribed Textbooks:**

1. Software Testing & Quality Assurance: Theory and Practice, Naik & Tripathy, ISBN-10: 0471789119, 2008
2. Applied Software Project Management, Stellman & Greene, ISBN 10:0-596-00948-8, 2005

Grade Weighting:

Assignments (six, individual)	25%	*(Drop one of the assignments)*
Projects (three, group)	25%	
Biweekly "checkup"	30%	*(Every 2nd Fri., all questions supplied in adv.)*
Midterm exam	10%	
Final exam	10%	

Attendance: Attendance is not recorded. Attendance is expected at exams (announced one week in advance) and Biweekly "checkup" (every 2nd Friday beginning Aug. 28). In any event you are responsible for any information presented and announcements made in class. Late arrival and early departure is discouraged as rude to your fellow computer scientists.

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academic materials, including material taken from or ordered through the Internet.

Facilitating academic dishonesty: assisting or attempting to assist another to violate any provision of the Missouri State University Academic Integrity Policy, whether or not that action is associated with any particular course.

Exchange of answers or code during an assignment or test will be considered to be cheating and plagiarism. Instructor reserves the right to use software analysis tools to detect plagiarism in source code.

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(Annotation on Cell Phone Policy for Dr. Ken Vollmar's course)
It is allowable to leave the room in an unobtrusive manner in response to a non-audible "ring." However, audible ringtones or overexcited leaping from the room will invoke the MSU policy as stated above.

Electronic device policy: Laptop computers, smartphones, etc., will generally NOT be allowed. If it is critical to you to use a device for note-taking, please see me. Electronic devices must comply with the cell phone policy in their capability as a "communicative device."

Policy on Use of iPods, MP3 Players, or Other Entertainment Devices in Classes: Students have a responsibility to demonstrate respect and consideration of other students, as well as their instructors. The use of entertainment devices such as iPods, MP3 players, etc., is, therefore, strictly prohibited during classes. All such devices must be turned off and put away, and cannot be taken out during class.

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Important Dates: The Academic Calendar http://calendar.missouristate.edu/academic.asp contains information such as drop deadlines, etc. Important class events such as exams will be announced at least one week in advance. Due dates for assignments will be given with the assignment itself.

(5)

Missouri State University
CURRICULAR PROPOSAL
NEW COURSE (or new REGULAR SECTION of an existing variable content course)

Department Computer Science **Date** 8/26/2015

Check one: __X__**New COURSE** ____**New REGULAR (i.e. permanent) SECTION of an existing variable content course. If a new regular section of an existing variable topics course, to what existing course is it to be attached?** _____

Course Code CSC **Course Number** 515 **Course Title** Advanced Internet Programming

PROPOSED CATALOG DESCRIPTION

CSC 515 Advanced Internet Programming
Prerequisite: CSC 365 Internet Programming. A continuation of CSC 365. Topics include HTML as a semantic language, advanced css techniques, the DOM event model, asynchronous JavaScript, user input validation, utilizing 3rd party APIs, authentication over HTTP and high performance site design (including request minification and compression). Security principles will be reinforced throughout the course. May be taught concurrently with CSC 615. Cannot receive credit for both CSC 515 and CSC 615.

Credit hours: 3 Lecture contact hours: 3 Lab contact hours: 0
Typically offered: Spring

PURPOSE OF COURSE

This elective course enables students to learn and practice techniques useful for professional employment in the commercial web development field.

RELATIONSHIP TO OTHER DEPARTMENTS

None

DEPARTMENT: Route according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Attach New Course Resource Information form (FS 300a/05) and forward three typed, originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If the course needs to go through more than one council/committee forward one additional form for each additional council/committee marked.

__X__ **College Council**	(All new course proposals numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/ council or directly to the Faculty Senate if no further committee approval is needed.)
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_____ **Committee on General Education and Intercollegiate Programs**	(Considers all general education and multi-college new course proposals)
_____ **Graduate Council**	(Considers all 600-, 700-, and 800-level new courses)

*If the course needs to go through more than one council/committee, forward one additional form for each additional council/committee marked.

Signature Kenneth Volkman **Date** 8/25/15
Department Head

(Routing on Reverse Side)

(5)

NEW COURSE RESOURCE INFORMATION

Department Computer Science Date 8/26/2015

Course Number and Title CSC 515 Advanced Internet Programming

Anticipated Average Enrollment 15 Maximum Enrollment Limit 30

Faculty Load Assignment 3 equated Hours

1 Is another course being deleted? If so, give course number and title.

No

2 What will this course require in the way of:

Additional library holdings? None

Additional computer resources? None

Additional or remodeled facilities? None

Additional equipment or supplies? None

Additional travel funds? None

Additional faculty--general vs specialized? None

Other additional expenses? None

3 If additional faculty are not required, how will faculty be made available to teach this course?

Per-course faculty will be used to obtain current professional-level familiarity.

List names of current faculty qualified to teach this course: N/A

4 What is the anticipated source of students for this course? (If from within the department, will students be taking this course in addition to or in place of other courses? If from outside the department, which courses in other departments would most likely be affected?)

Students in existing CSC major who intend to make career in web development. Students will take this course in place of other elective courses.

5 Other comments:

The graduate level parallel course CSC 615 is in submission.

(5)

CSC 590 - Advanced Internet Programming

Course Policy Statement - Spring 2014

Instructor: Chad Killingsworth
Office: Park Central Office Building 101 (Moving to Meyer Alumni Center during semester)
Phone: 417-836-4396
Email: chadkillingsworth@missouristate.edu
Office Hours: By appointment. I'm generally available by email during business hours.

Course Description: A continuation of CSC 365. Topics include HTML as a semantic language, advanced css techniques, the DOM event model, asynchronous JavaScript, user input validation, utilizing 3rd party APIs, authentication over HTTP and high performance site design (including request minification and compression). Security principles will be reinforced throughout the course.

Learning Outcomes: Upon completion of the course, students should:

1. Understand how to semantically structure an HTML document.
2. Correctly describe and use CSS techniques such a floating and positioning.
3. Have an in-depth knowledge of JavaScript.
4. Be familiar with the JavaScript libraries of both jQuery and Closure-library.
5. Understand HTTP and know how to optimize requests.
6. Have a basic understanding of the OAuth protocol.

Textbooks:

- Web Programming Step by Step 2nd Edition by Marty Stepp, Jessica Miller and Victoria Kirst
- JavaScript - The Definitive Guide by David Flanagan

Required Resources: A publicly accessible space for developing web sites. The university will provide one for you. Visit http://cams.missouristate.edu/ to create a personal web space.

Attendance: Attendance is not recorded or included in course grading. It is to your advantage to attend class, and you are responsible for any information presented, announcements made, or assignments given in class. Late arrival and early departure is discouraged as rude to your fellow computer scientists.

Tentative Outline

1. HTML as a semantic language
2. Advanced CSS
3. JavaScript
4. jQuery, Google Closure Library, Google Closure Compiler
5. HTML5 forms
6. APIs - HTML5 and vendor provided
7. Dissecting HTTP
8. OAuth

Grading

Exams 1 and 2	10% each
Assignments and Exercises	70% (Drop 2 lowest)
Final Exam	10%

The assignment grading scheme drops the lowest two scores when determining the final score. It is expected that "ordinary" disasters such as accidentally misnamed files, network failures at the assignment due time, illness, etc. will be accommodated by these dropped grades. Additional extensions are not likely unless caused by "severe" disaster.

For the purposes of determining a grade for the course, the grades from exams, assignments, and projects will be combined as shown above. The course grade will be determined by totalling the score of all exams and assignments (minus lowest two assignment scores) and dividing it by the total possible score for the class. Letter grades will be assigned as follows:

- 90% and above is an A
- 80% and above is a B
- 70% and above is a C
- 60% and above is a D
- below 60% is an F

The numeric requirements for letter grades may be lowered to reflect a curve but will not be raised.

An "N" grade for this course cannot be assigned after the deadline in the academic calendar, (http://www.missouristate.edu/recreg/acad_cal.html)

Examinations: Exact dates for exams will be announced in class at least one week in advance. Missed exam(s) may be made up **only by prior arrangement** or exceptional circumstances.

Important Notes on Grading:

- The best way to improve your course grade is to submit assignments on time.
- The best way to reduce your course grade is to not turn in assignments or labs.
- The due date will be given with each assignment. The date on your email to me or the file's date in the upload directory, as applicable, will be the date used. The time of day will not be a factor.
- Late assignments will be penalized 10% for each calendar day after the due date.
- All assignments and lab exercises may be completed using MSU-provided equipment and software or software available by download.

Laptops, Tablets and Other Devices

Laptop computers, tablets or other devices are allowable for note-taking purposes only, provided that there are only minimal keyboard noises. If I believe that your device is in use for other than note-taking, or is more of a distraction than a benefit to you or to others, I will ask you to put it away. Laptops and PDAs must comply with the cell phone policy in their capability as a "communicative device."

Cell Phones

As a member of the learning community, each student has a responsibility to other students who are members of the community. When cell phones ring or receive other audible notifications and students respond in class or leave class to respond, it disrupts the class. Therefore, the Office of the Provost prohibits the use by students of cell phones, pagers, PDAs, or similar communication devices during scheduled classes. All such devices must be turned off or put in a silent (vibrate) mode and ordinarily should not be taken out during class. Given the fact that these same communication devices are an integral part of the University's emergency notification system, an exception to this policy would occur when numerous devices activate simultaneously. When this occurs, students may consult their devices to determine if a university emergency exists. If that is not the case, the devices should be immediately returned to silent mode and put away. Other exceptions to this policy may be granted at the discretion of the instructor.

University Policies

Academic Integrity

Missouri State University is a community of scholars committed to developing educated persons who accept the responsibility to practice personal and academic integrity. You are responsible for knowing and following the university's student honor code, Student Academic Integrity Policies and Procedures (http://www.missouristate.edu/policy/Op3_01_AcademicIntegrityStudents.htm) and also available at the Reserves Desk in Meyer Library. Any student participating in any form of academic dishonesty will be subject to sanctions as described in this policy.

Nondiscrimination

Missouri State University is an equal opportunity/affirmative action institution, and maintains a grievance procedure available to any person who believes he or she has been discriminated against. At all times, it is your right to address inquiries or concerns about possible discrimination to the Office for Institutional Equity and Compliance, Park Central Office Building, 117 Park Central Square, Suite 111, (417) 836-4252. Other types of concerns (i.e., concerns of an academic nature) should be discussed directly with your instructor and can also be brought to the attention of your instructor's Department Head. Please visit the OED website at www.missouristate.edu/equity/.

Disability Accommodation

To request academic accommodations for a disability, contact the Director of the Disability Resource Center, Plaster Student Union, Suite 405, (417) 836-4192 or (417) 836-6792 (TTY), www.missouristate.edu/disability. Students are required to provide documentation of disability to the Disability Resource Center prior to receiving accommodations. The Disability Resource Center refers some types of accommodation requests to the Learning Diagnostic Clinic, which also provides diagnostic testing for learning and psychological disabilities. For information about testing, contact the Director of the Learning Diagnostic Clinic, (417) 836-4787, http://psychology.missouristate.edu/ldc.

Missouri State University
Curricular Proposal Program Change or Deletion

Department _____Mathematics_____ **Date**_____4/27/2015_____

Title of Program Affected _____Bachelor of Science in Education (Mathematics Education)_____

Type of Program: Major__x__ Comprehensive Major____ Option____ Minor____ Certificate____ Certification____
Academic Rules____ Other____

Revised Catalog Description (cut and paste present description from online catalog, strikethrough all deletions, and insert and bold new information)

Mathematics Education

Major(s)

Mathematics

Bachelor of Science in Education (Certifiable grades 9-12)

General Education Requirements - see General Education Program and Requirements section of catalog

Major Requirements

MTH 261(5), 280(5), 302(3), 315(3), 345(3), 460(3), ~~497(1)~~, 532(3), 533(3), 575(3)

Select two courses from: MTH 503(3), 536(3), 540(3), ~~510~~**(3)**, 567(3)

Courses required from related areas: CSC 121(3) or 125(4) or 130(3); PHY 123(4) or 203(5)

Public Affairs Capstone Experience will be fulfilled by completion of ~~MTH 497(1)~~, 493(5-6) and 494(5-6).

Professional Education Requirements. Note: A grade of "C" or better in each course is required for state certification.

MTH 409(3), 410(3), ~~411~~**(3)**, 493(5-6), 494(5-6)

Professional Education Required Core and Competencies - see Teacher Certification, Teacher Education Program and Secondary Education Requirements section of catalog

This program also requires compliance with the Teacher Education Program requirements for eligibility to enroll in Professional Education courses; admission to and continuance in the Teacher Education Program; approval for supervised teaching; and recommendation for certification; as well as the requirements for Secondary Education. Refer to the Teacher Education Program section of the catalog for requirements.

General Baccalaureate Degree Requirements - see General Baccalaureate Degree Requirements section of catalog

In order to meet Missouri state teacher certification requirements, candidates for the Bachelor of Science in Education degree are required to meet the following grade point average requirements: at least a 2.75 GPA on all course work attempted at all colleges attended; at least a 3.00 GPA in the certificate subject area (major field of study) which includes all courses listed under B; at least a 3.00 GPA in any additional certificate subject area; at least a 3.00 GPA in the professional education courses which includes all courses listed under C; and no grade lower than a "C" in all professional education courses. All GPA requirements include both Missouri State and transfer grades.

Complete New Catalog Description

Mathematics Education

Major(s)

Mathematics

Bachelor of Science in Education (Certifiable grades 9-12)

General Education Requirements - see General Education Program and Requirements section of catalog

MTH 261(5), 280(5), 302(3), 315(3), 345(3), 460(3), 532(3), 533(3), 575(3)

Select two courses from: MTH 503(3), 536(3), 510(3), 540(3), 567(3)

Courses required from related areas: CSC 121(3) or 125(4) or 130(3); PHY 123(4) or 203(5)

Public Affairs Capstone Experience will be fulfilled by completion of 493(5-6) and 494(5-6).

Professional Education Requirements. Note: A grade of "C" or better in each course is required for state certification.

MTH 409(3), 410(3), 411(3), 493(5-6), 494(5-6)

Professional Education Required Core and Competencies - see Teacher Certification, Teacher Education Program and Secondary Education Requirements section of catalog

This program also requires compliance with the Teacher Education Program requirements for eligibility to enroll in Professional Education courses; admission to and continuance in the Teacher Education Program; approval for supervised teaching; and recommendation for certification; as well as the requirements for Secondary Education. Refer to the Teacher Education Program section of the catalog for requirements.

General Baccalaureate Degree Requirements - see General Baccalaureate Degree Requirements section of catalog

In order to meet Missouri state teacher certification requirements, candidates for the Bachelor of Science in Education degree are required to meet the following grade point average requirements: at least a 2.75 GPA on all course work attempted at all colleges attended; at least a 3.00 GPA in the certificate subject area (major field of study) which includes all courses listed under B; at least a 3.00 GPA in any additional certificate subject area; at least a 3.00 GPA in the professional education courses which includes all courses listed under C; and no grade lower than a "C" in all professional education courses. All GPA requirements include both Missouri State and transfer grades.

Total Hours__47 – 49 in major (+2 from previous program), 119 – 122 required for program (plus electives to 125) _____

What is changing? Check all boxes that apply.

___ Title change
_x_ Course changes of under 18 hours
___ Course changes of 18 hours or more
___ From option to program (major)
___ From program (major) to option
___ Program or option deletion
___ Other_____

Reason for Proposed Change

MTH 497 is dropped to incorporate MTH 411 (important competencies in 497 are now incorporated in MTH 411), MTH 510 Is substituted for MTH 540 because the competencies for MTH 510 Is a better match for state and professional organization guidelines. The new course, MTH 411 is added to accommodate new state certification requirements and the competencies of MTH 497 (This change adds 2 hours to the mathematics program requirements.)

DEPARTMENT: Route according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty Senate. Forward three typed, originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If the program needs to go through more than one committee/council, forward one additional form for each additional council/ committee marked.

____x__ **College Council**	(Send all undergraduate program changes through College Council as first step before forwarding either to PEC, CGEIP, or directly to Faculty Senate)
____x__ **Professional Education Committee**	(Considers all program changes affecting BS and MS in Education and Educational Specialist degrees)
_____ **Committee on General Education and Intercollegiate Programs**	(Considers all general education and multi-college program changes)
_____ **Graduate Council**	(Considers all graduate-level program changes)

Signature_____ **Date** 8/25/15
Department Head

(Routing on Reverse Side)

(7)

Missouri State University
CURRICULAR PROPOSAL
NEW COURSE (or new REGULAR SECTION of an existing variable content course)

Department Mathematics
Date 4/17/15

Check one: __x__New COURSE ____New REGULAR (i.e. permanent) SECTION of an existing variable content course. If a new regular section of an existing variable topics course, to what existing course is it to be attached? _____

Course Code__MTH__ Course Number__411____ Course Title_____Teaching and Learning of Mathematics III_____

PROPOSED CATALOG DESCRIPTION

MTH 411 Teaching and Learning of Mathematics III

Prerequisite: MTH 409, and admission to the Teacher Education Program. Concurrent enrollment with MTH 410 is required. Focus will be on knowledge of students and the learning environment, designing instruction for student learning, and implementing and analyzing instruction to promote student learning. Credited only on the B.S. in Education (secondary). A grade of "C" or better is required in this course to take MTH 493. May not be taken Pass/Not Pass. Will not count toward the major GPA.

Credit hours: 3
Lecture contact hours: 2
Lab contact hours: 2
Typically offered: Fall

PURPOSE OF COURSE

This course will complement the other two methods courses for secondary mathematics majors, and will be taken the same semester as MTH 410. This course is a necessary addition to the current methods courses to meet additional competencies related to state assessments during student teaching (MoPTA). The current methods courses cannot adequately address the competencies expected (teaching of algebra and geometry, assessment, management, lesson development, teaching at Greenwood, and MoPTA preparation.

RELATIONSHIP TO OTHER DEPARTMENTS
none

DEPARTMENT: Route according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Attach New Course Resource Information form (FS 300a/05) and forward three typed, originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If the course needs to go through more than one council/committee forward one additional form for each additional council/committee marked.

___x___ **College Council**	(All new course proposals numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/ council or directly to the Faculty Senate if no further committee approval is needed.)
___x___ **Professional Education Committee**	(Considers all new courses affecting BS and MS in Education and Educational Specialist degrees)
_____ **Committee on General Education and Intercollegiate Programs**	(Considers all general education and multi-college new course proposals)
_____ **Graduate Council**	(Considers all 600-, 700-, and 800-level new courses)

*If the course needs to go through more than one council/committee, forward one additional form for each additional council/committee marked.

Signature _____ **Date** 5/6/2015
Department Head

(Routing on Reverse Side)

(7)

FS-2005

NEW COURSE RESOURCE INFORMATION

Department Mathematics Date 4/17/15

Course Number and Title Teaching and Learning of Mathematics III

Anticipated Average Enrollment 12 Maximum Enrollment Limit 32

Faculty Load Assignment 4 Equated Hours

1 Is another course being deleted? If so, give course number and title.

no

2 What will this course require in the way of:

Additional library holdings? none

Additional computer resources? none

Additional or remodeled facilities? none

Additional equipment or supplies? none

Additional travel funds? none

Additional faculty--general vs specialized? Possibly per-course

Other additional expenses? none

3 If additional faculty are not required, how will faculty be made available to teach this course?

Current mathematics educators, and newly hired mathematics educator will teach this course. One less section of MTH 320 or 360 in the fall semesters can have math ed. Faculty as instructors when that faculty member is assigned to teach this course. If enrollment in MTH 320 and 360 goes beyond what can be handled by the workload of current faculty, per-course faculty will teach a section of MTH 320 or 360 (consistent with current policy).

List names of current faculty qualified to teach this course: Killion, Ragan, Harbaugh, Sullivan, Plymate, Sherrill

4 What is the anticipated source of students for this course? (If from within the department, will students be taking this course in addition to or in place of other courses? If from outside the department, which courses in other departments would most likely be affected?)

Secondary mathematics education students will take this course prior to student teaching. This course is in addition to the current methods courses (MTH 409 and 410) required for these students.

5 Other comments:

(7)

MATH 411 Syllabus: Teaching and Learning of Mathematics III

Course Description and Purpose: 3(2-2) F
Prerequisite: MTH 409 and admission to Teacher Education Program. Concurrent enrollment with MTH 410 is required. Focus will be on knowledge of students and the learning environment, designing instruction for student learning, and implementing and analyzing instruction to promote student learning. Credited only on the B.S. in Education (secondary). A grade of "C" or better is required in this course to take MTH 493. May not be taken Pass/Not Pass. Will not count toward the major GPA.

This course is required for the B.S. Ed. degree with a major in mathematics. This course will extend and develop the student's conceptual framework for teaching high school mathematics courses. Each student will be required to take the mathematics major assessment exam, MFAT. This course includes a variety of written components.

Resources: Missouri State University Student Teaching Handbook, http://education.missouristate.edu/assets/efe/2014-2015_Student_Teaching_Handbook.pdf

Missouri Pre-Service Teacher Assessment, Department of Elementary and Secondary Education, https://dese.mo.gov/

Missouri Learning Standards, https://dese.mo.gov/sites/default/files/CCSSI_Math%20Standards.pdf

Course Objectives: In preparing pre-service secondary mathematics teachers to make professional teaching decisions, this course is designed with the following objectives in mind: (These objectives are linked to the general learning outcomes in the Conceptual Framework (CF) of the Educator Preparation Provider Council (EPPC), to the Missouri Standards for Professional Educators (MoSPE) standards and quality indicators, to the Math Specialty Area (MA) performance indicators for secondary school teachers of mathematics, and to the MSU EEPC Diversity Proficiencies (DP).

1. The pre-service teacher understands the central concepts, structures, and tools of inquiry and creates learning experiences that make these aspects of mathematics meaningful and engaging for all students. (CF 1, 2), (MoSPE 1.1, 1.2, 1.3, 1.5), (DP 2)

2. The pre-service teacher understands how students learn, develop and differ in their approaches to learning. (CF 3), (MoSPE 2.3, 2.4), (DP 4)

3. The pre-service teacher recognizes the importance of curriculum development. The pre-service teacher develops, implements, and evaluates curriculum based upon student data. (CF 6), (MoSPE 3.1, 3.2, 3.3), (DP 3)

4. The pre-service teacher uses a variety of instructional strategies and resources to encourage students' critical thinking, problem solving, and performance skills.
(CF 6), (MoSPE 4.1, 4.2, 4.3), (DP 3, 5)

5. The pre-service teacher uses an understanding of individual/group motivation and behavior to create a learning environment that encourages active engagement in learning, positive social interaction, and self-motivation. (CF 6), (MoSPE 5.1, 5.2, 5.3), (DP 6)

6. The teacher models effective verbal, nonverbal, and media communication techniques with students to foster active inquiry, collaboration, and supportive interaction in the classroom. (CF 6), (MoSPE 6.1, 6.2, 6.3, 6.4), (DP 2)

7. The pre-service teacher is a reflective practitioner who continually assesses the effects of choices and actions on others. (CF 4), (MoSPE 8.1), (DP 1)

8. The pre-service teacher actively seeks out opportunities to grow professionally in order to improve learning for all students. (CF 8), (MoSPE 8.2), (DP 5)

9. The pre-service teacher demonstrates appropriate professional dispositions. (CF 8), (MoSPE 9), (DP 4)

Course Topics:

- MoPTA Task 3 (Designing Instruction for Student Learning)
- Lessons Plans
- Instructional Strategies
- Motivational Instruction
- Student-Centered Learning
- Differentiated Instruction
- Real World Application
- MoPTA Task 4 (Implementing and Analyzing Instruction)
- Teaching/Executing Lessons
- Questioning Techniques
- Classroom Management
- Greenwood Observation and Teaching

Attendance: Regular attendance and class participation are required in this course. Class activities and discussions provide unique and valuable experiences which are necessary to meet the course objectives. These experiences cannot be recovered when missed due to absence.

Assessments:

Participation and Attendance 10%
Formative Assessments (assignments, quizzes, lesson evaluations, etc.) 40%
Summative Assessment (exams, presentations, written components, etc.) 50%

Grades: Course grades will be determined by the percentage of points earned as described above and will be awarded as follows:

A	94 – 100 %	C+	77 – 79%
A-	90 – 95%	C	74 – 76%
B+	87 – 89%	C-	70 – 73%
B	84 – 86%	D	60 – 69%
B-	80 – 83%	F	Below 60%

Incompletes: An incomplete grade (I) will be given only to a student who has completed a significant amount of the course, has a passing grade, and has a non-academic emergency that prevents completion of the course on schedule.
Details at http://www.missouristate.edu/registrar/catalog/incomple.html

Cell Phones: As a member of the learning community, each student has a responsibility to other students who are members of the community. When cell phones or pagers ring and students respond in class or leave class to respond, it disrupts the class. Therefore, the Office of the Provost prohibits the use by students of cell phones, pagers, PDAs, or similar communication devices during scheduled classes. All such devices must be turned off or put in a silent (vibrate) mode and ordinarily should not be taken out during class. Given the fact that these same communication devices are an integral part of the University's emergency notification system, an exception to this policy would occur when numerous devices activate simultaneously. When this occurs, students may consult their devices to determine if a university emergency exists. If that is not the case, the devices should be immediately returned to silent mode and put away. Other exceptions to this policy may be granted at the discretion of the instructor. Sanctions for violation of this policy are determined by the instructor and may include dismissal from the class. (http://www.missouristate.edu/provost/celluse.htm).

Academic Dishonesty: Missouri State University is a community of scholars committed to developing educated persons who accept the responsibility to practice personal and academic integrity. You are responsible for knowing and following the university's student honor code, Student Academic Integrity Policies and Procedures and also available at the Reserves Desk in Meyer Library. Any student participating in any form of academic dishonesty will be subject to sanctions as described in this policy. These may include a zero for the assignment/test, an F for the course, or an XF for the course.

Disability: To request academic accommodations for a disability, contact the Director of the Disability Resource Center, Plaster Student Union, Suite 405, (417) 836-4192 or (417) 836-6792 (TTY), www.missouristate.edu/disability. Students are required to provide documentation of disability to the Disability Resource Center prior to receiving accommodations. The Disability Resource Center refers some types of accommodation requests to the Learning Diagnostic Clinic, which also provides diagnostic testing for learning and psychological disabilities. For information about testing, contact the Director of the Learning Diagnostic Clinic, (417) 836-4787, http://psychology.missouristate.edu/ldc.

Emergency Response: At the first class meeting, students should become familiar with a basic emergency response plan through a dialogue with the instructor that includes a review and awareness of exits specific to the classroom and the location of evacuation centers for the building. All instructors are provided this information specific to their classroom and/or lab assignments in an e-mail prior to the beginning of the fall semester from the Office of the Provost and Safety and Transportation.

Students with disabilities impacting mobility should discuss the approved accommodations for emergency situations and additional options when applicable with the instructor. For more information go to http://www.missouristate.edu/safetran/51597.htm and http://www.missouristate.edu/safetran/erp.htm.

Nondiscrimination: Missouri State University is an equal opportunity/affirmative action institution, and maintains a grievance procedure available to any person who believes he or she has been discriminated against. At all times, it is your right to address inquiries or concerns about possible discrimination to the Office for Institutional Equity and Compliance, Park Central Office Building, 117 Park Central Square, Suite 111, 417-836-4252. Other types of concerns (i.e., concerns of an academic nature) should be discussed directly with your instructor and can also be brought to the attention of your instructor's Department Head. Please visit the OED website at www.missouristate.edu/equity/.

Audio and Video Recording of Course Activity: Students may make audio or video recordings of course activity. However, the redistribution of audio or video recordings from the course to individuals who are not students in the class is prohibited without the express permission of the faculty member and any of the students who are recorded.

Religious Accommodations
The University may provide a reasonable accommodation based on a person's sincerely held religious belief. In making this determination, the University reviews a variety of factors, including whether the accommodation would create an undue hardship. The accommodation request imposes responsibilities and obligations on both the individual requesting the accommodation and the University. Students who expect to miss classes, examinations, or other assignments as a consequence of their sincerely held religious belief shall be provided with a reasonable alternative opportunity to complete such academic responsibilities. It is the obligation of students to provide faculty with reasonable notice of the dates of religious observances on which they will be absent by submitting a Request for Religious Accommodation Form to the instructor by the end of the third week of a full semester course or the end of the second week of a half semester course.

(8)

Missouri State University
CURRICULAR PROPOSAL
NEW COURSE (or new REGULAR SECTION of an existing variable content course)

Department Mathematics
Date 4/27/15

Check one: __x__New COURSE ____New REGULAR (i.e. permanent) SECTION of an existing variable content course. If a new regular section of an existing variable topics course, to what existing course is it to be attached? _____

Course Code__MTH__ Course Number__510____ Course Title_____High School Mathematics from an Advanced Perspective_____

PROPOSED CATALOG DESCRIPTION

MTH 510 High School Mathematics from an Advanced Perspective

Prerequisite: permission of instructor. The focus of the course will be on relating the mathematics students have learned in upper-level courses to what they will be teaching when they are in the high school classroom. The students' ability to reason and problem-solve mathematically and to model real-world problems in a mathematical context will be developed so they will able to pass these abilities on to their own students. If there is sufficient demand, an on-line component may be offered. Credited only on the B.S. in Education (secondary). May not be taken Pass/Not Pass.

Credit hours: 3
Lecture contact hours: 3
Lab contact hours: 0
Typically offered: Spring

PURPOSE OF COURSE

This course is an elective for the B.S. Ed. degree with a major in mathematics. This course will extend and develop the student's foundational background for teaching high school mathematics courses. The course topics may include algebra and number theory, geometry and trigonometry, functions and analysis, probability and statistics, discrete mathematics, and modeling.

RELATIONSHIP TO OTHER DEPARTMENTS

none

DEPARTMENT: Route according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Attach New Course Resource Information form (FS 300a/05) and forward three typed, originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If the course needs to go through more than one council/committee forward one additional form for each additional council/committee marked.

___x___ **College Council**	(All new course proposals numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/ council or directly to the Faculty Senate if no further committee approval is needed.)
___x___ **Professional Education Committee**	(Considers all new courses affecting BS and MS in Education and Educational Specialist degrees)
_____ **Committee on General Education and Intercollegiate Programs**	(Considers all general education and multi-college new course proposals)
_____ **Graduate Council**	(Considers all 600-, 700-, and 800-level new courses)

*If the course needs to go through more than one council/committee, forward one additional form for each additional council/committee marked.

Signature _____ **Date** 5/6/2015
Department Head

(Routing on Reverse Side)

NEW COURSE RESOURCE INFORMATION

Department Mathematics Date 4/27/15

Course Number and Title MTH 510 High School Mathematics from an Advanced Perspective

Anticipated Average Enrollment 15 Maximum Enrollment Limit 25

Faculty Load Assignment 3 Equated Hours

1 Is another course being deleted? If so, give course number and title.

no

2 What will this course require in the way of:

Additional library holdings? none

Additional computer resources? none

Additional or remodeled facilities? none

Additional equipment or supplies? none

Additional travel funds? none

Additional faculty--general vs specialized? none

Other additional expenses? none

3 If additional faculty are not required, how will faculty be made available to teach this course?

This course will be offered in the Spring semester when department resources can be used more flexibly.

List names of current faculty qualified to teach this course: all ranked faculty

4 What is the anticipated source of students for this course? (If from within the department, will students be taking this course in addition to or in place of other courses? If from outside the department, which courses in other departments would most likely be affected?)

This will be an elective for secondary mathematics education students.

5 Other comments:

MATH 510 Syllabus: High School Mathematics from an Advanced Perspective

Course Description and Purpose: 3(3-0) S
Prerequisite: permission of instructor. The focus of the course will be on relating the mathematics students have learned in upper-level courses to what they will be teaching when they are in the high school classroom. The students' ability to reason and problem-solve mathematically and to model real-world problems in a mathematical context will be developed so they will able to pass these abilities on to their own students. If there is sufficient demand, an on-line component may be offered. Credited only on the B.S. in Education (secondary). May not be taken Pass/Not Pass.

This course is an elective for the B.S. Ed. degree with a major in mathematics. This course will extend and develop the student's foundational background for teaching high school mathematics courses. The course topics may include algebra and number theory, geometry and trigonometry, functions and analysis, probability and statistics, discrete mathematics, and modeling.

Course Objectives: Studies have shown that there is little correlation between the set of upper-level mathematics courses mathematics education majors take and their future students' success rates in the classroom. The Conference Board of the Mathematical Sciences has proposed a two-fold approach to alleviate this problem.

1. The theoretical topics education majors encounter in college must be explicitly connected to the mathematics they will be teaching every day. (CF 1, 2, 6) (MoSPE 1.1, 1.2, 1.3, 6.1, 6.3)

2. Future teachers need to learn (CF 1, 2, 6) (MoSPE 1.1, 1.2, 1.3)
   a. to reason mathematically
   b. to model real-world situations mathematically
   c. to deal with problems mathematically

in order to impart these skills to their students. The purpose of this course is to address these issues. Topics (consistent with the Missouri Learning Standards) may include algebra and number theory, geometry and trigonometry, functions and analysis, probability and statistics, discrete mathematics, and modeling. (CF 1, 2, 6) (MoSPE 1.1, 1.2, 6.1, 6.3)

Course Topics:
- The necessity for rigor and logic in mathematics
- Number theory
- The theory of equations
- Measurement: area, volume, and centroids
- Trigonometry
- Geometry: theorems about triangles and circles
- The real numbers: geometric series, decimal representation
- Cardinality of sets: countable vs. uncountable
- The complex numbers
- Recursion
- Fractals
- Geometric transformations
- Probability and Statistics
- Modeling

(9)

Missouri State University
CURRICULAR PROPOSAL
NEW COURSE (or new REGULAR SECTION of an existing variable content course)

Department Mathematics
Date 4/27/15

Check one: __x__New COURSE ____New REGULAR (i.e. permanent) SECTION of an existing variable content course. If a new regular section of an existing variable topics course, to what existing course is it to be attached? _____

Course Code__MTH__ Course Number__610____ Course Title_____High School Mathematics from an Advanced Perspective_____

PROPOSED CATALOG DESCRIPTION

MTH 610 High School Mathematics from an Advanced Perspective

Prerequisite: permission of instructor. The focus of the course will be on relating the mathematics students have learned in upper-level courses to what they will be teaching when they are in the high school classroom. The students' ability to reason and problem-solve mathematically and to model real-world problems in a mathematical context will be developed so they will able to pass these abilities on to their own students. If there is sufficient demand, an on-line component may be offered. May not be taken Pass/Not Pass. May be taught concurrently with MTH 510. Cannot receive credit for both MTH 510 and MTH 610.

Credit hours: 3
Lecture contact hours: 3
Lab contact hours: 0
Typically offered: Spring

PURPOSE OF COURSE

This course will extend and develop the student's foundational background for teaching high school mathematics courses. The course topics may include algebra and number theory, geometry and trigonometry, functions and analysis, probability and statistics, discrete mathematics, and modeling.

RELATIONSHIP TO OTHER DEPARTMENTS

none

DEPARTMENT: Route according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Attach New Course Resource Information form (FS 300a/05) and forward three typed, originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If the course needs to go through more than one council/committee forward one additional form for each additional council/committee marked.

_____ **College Council**	(All new course proposals numbered 100-599 must go through College Council first. After approval, College Council will forward appropriate number of copies to the next committee/ council or directly to the Faculty Senate if no further committee approval is needed.)
___x___ **Professional Education Committee**	(Considers all new courses affecting BS and MS in Education and Educational Specialist degrees)
_____ **Committee on General Education and Intercollegiate Programs**	(Considers all general education and multi-college new course proposals)
___x__ **Graduate Council**	(Considers all 600-, 700-, and 800-level new courses)

*If the course needs to go through more than one council/committee, forward one additional form for each additional council/committee marked.

Signature _____ **Date** 6/25/15
Department Head

(Routing on Reverse Side)

(9)

FS-2005

NEW COURSE RESOURCE INFORMATION

Department Mathematics Date 4/27/15

Course Number and Title MTH 610 High School Mathematics from an Advanced Perspective

Anticipated Average Enrollment 15 Maximum Enrollment Limit 25

Faculty Load Assignment 3 Equated Hours

1 Is another course being deleted? If so, give course number and title.

no

2 What will this course require in the way of:

Additional library holdings? none

Additional computer resources? none

Additional or remodeled facilities? none

Additional equipment or supplies? none

Additional travel funds? none

Additional faculty--general vs specialized? none

Other additional expenses? none

3 If additional faculty are not required, how will faculty be made available to teach this course?

This course will be offered in the Spring semester when department resources can be used more flexibly.

List names of current faculty qualified to teach this course: all ranked faculty

4 What is the anticipated source of students for this course? (If from within the department, will students be taking this course in addition to or in place of other courses? If from outside the department, which courses in other departments would most likely be affected?)

This will be an elective for secondary mathematics education students.

5 Other comments:

MATH 610 Syllabus: High School Mathematics from an Advanced Perspective

Course Description and Purpose: 3(3-0) S
Prerequisite: permission of instructor. The focus of the course will be on relating the mathematics students have learned in upper-level courses to what they will be teaching when they are in the high school classroom. The students' ability to reason and problem-solve mathematically and to model real-world problems in a mathematical context will be developed so they will able to pass these abilities on to their own students. If there is sufficient demand, an on-line component may be offered. May not be taken Pass/Not Pass. May be taught concurrently with MTH 510. Cannot receive credit for both MTH 510 and MTH 610.

This course will extend and develop the student's foundational background for teaching high school mathematics courses. The course topics may include algebra and number theory, geometry and trigonometry, functions and analysis, probability and statistics, discrete mathematics, and modeling.

Course Objectives: Studies have shown that there is little correlation between the set of upper-level mathematics courses mathematics education majors take and their future students' success rates in the classroom. The Conference Board of the Mathematical Sciences has proposed a two-fold approach to alleviate this problem.

1. The theoretical topics education majors encounter in college must be explicitly connected to the mathematics they will be teaching every day.

2. Future teachers need to learn
    a. to reason mathematically
    b. to model real-world situations mathematically
    c. to deal with problems mathematically

in order to impart these skills to their students. The purpose of this course is to address these issues. Topics (consistent with the Missouri Learning Standards) may include algebra and number theory, geometry and trigonometry, functions and analysis, probability and statistics, discrete mathematics, and modeling.

Course Topics:
- The necessity for rigor and logic in mathematics
- Number theory
- The theory of equations
- Measurement: area, volume, and centroids
- Trigonometry
- Geometry: theorems about triangles and circles
- The real numbers: geometric series, decimal representation
- Cardinality of sets: countable vs. uncountable
- The complex numbers
- Recursion
- Fractals
- Geometric transformations
- Probability and Statistics
- Modeling

(10)

Missouri State University
Curricular Proposal Course Change or Deletion

Department_____Mathematics_____ **Date**_____4/24/2015_____

Check one: This is a change to __x__an existing COURSE
____ an existing REGULAR (i.e. permanent) SECTION of a variable content course

Present Course Code and Number ____MTH 493__ **Course Title** __Supervised Teaching (Secondary Mathematics)

Revised Catalog Description (Copy/paste present description from online catalog, strikethrough all deletions, and insert/bold new information.)

MTH 493 Supervised Teaching (Secondary Mathematics)

Prerequisite: MTH 409; MTH 410; ***MTH 411;*** *a grade of "C" or better in all professional education courses; current pre-professional liability insurance; and approval for supervised teaching.* ~~Student~~ **The student** observes, then teaches mathematics classes under the direction of the cooperating teacher and the university supervisor. ~~Student~~ **The student also** participates in ~~school related~~ **professional** activities **of a teacher** ~~appropriate to the assignment and~~ **,** attends all required **university** meetings **, and completes all required university assignments**. ~~In order to receive a grade in this course, the student's professional portfolio must meet or exceed final criteria.~~ Course will not count toward the major GPA. Supplemental course fee. Public Affairs Capstone Experience course.

Credit hours: 5-6
Lecture contact hours:
Lab contact hours:
Typically offered: Fall, Spring

Complete New Catalog Information

MTH 493 Supervised Teaching (Secondary Mathematics)

Prerequisite: MTH 409; MTH 410; MTH 411; a grade of "C" or better in all professional education courses; current pre-professional liability insurance; and approval for supervised teaching. The student observes, then teaches mathematics classes under the direction of the cooperating teacher and the university supervisor. The student also participates in professional activities of a teacher, attends all required university meetings, and completes all required university assignments. Course will not count toward the major GPA. Supplemental course fee. Public Affairs Capstone Experience course.

Credit hours: 5-6
Lecture contact hours:
Lab contact hours:
Typically offered: Fall, Spring

What is changing? Check all boxes that apply.

□Course Deletion	□Course Code	□Course Number	□Title	x Prerequisite
□Credit Hours/Contact Hours		□Periodicity	x Description	

Reason for Proposed Change or Deletion

Prerequisite change to indicate the requirement of new methods course (MTH 411) prior to student teaching. Reference to the portfolio requirement was removed since the past extensive portfolio requirements are no longer in place. Some editorial changes were made ("The teacher" instead of "teacher". "Professional activities of a teacher" was substituted for "school related assignment" for clarity. More general wording (...**completes all required university assignments**) was added to account for the unknown changes in teacher preparation, rather than specify particular requirements like the portfolio).

How Did You Determine the Need For This Change or Deletion?

New required methods course needed to be coordinated (as a prerequisite) with student teaching. Course description was examined for accuracy related to current policy.

____ Check if this is a **non-substantive** change. Distribution for non-substantive changes of 100- through 500-level courses: two originally-signed copies to Faculty Senate; 600- through 900-level courses: three originally-signed copies to Graduate Council. Graduate Council will give two copies to Faculty Senate after approval.

(10)

Missouri State University
Curricular Proposal Course Change or Deletion

Department_____Mathematics_____ **Date**_____4/24/2015_____

Check one: This is a change to __x__an existing COURSE
____ an existing REGULAR (i.e. permanent) SECTION of a variable content course

Present Course Code and Number ____MTH 494__ **Course Title** __Supervised Teaching (Secondary Mathematics)

Revised Catalog Description (Copy/paste present description from online catalog, strikethrough all deletions, and insert/bold new information.)

MTH 494 Supervised Teaching (Secondary Mathematics)

Prerequisite: concurrent enrollment in MTH 493. ~~Student~~ **The student** observes, then teaches mathematics classes under the direction of the cooperating teacher and the university supervisor. ~~Student~~ **The student also** participates in ~~school related~~ **professional** activities **of a teacher** ~~appropriate to the assignment and~~ , attends all required **university** meetings **, and completes all required university assignments**. ~~In order to receive a grade in this course, the student's professional portfolio must meet or exceed final criteria.~~ Course will not count toward the major GPA. Supplemental course fee. Public Affairs Capstone Experience course.

Credit hours: 5-6
Lecture contact hours:
Lab contact hours:
Typically offered: Fall, Spring

Complete New Catalog Information

MTH 494 Supervised Teaching (Secondary Mathematics)

Prerequisite: concurrent enrollment in MTH 493. The student observes, then teaches mathematics classes under the direction of the cooperating teacher and the university supervisor. The student also participates in professional activities of a teacher, attends all required university meetings, and completes all required university assignments. Course will not count toward the major GPA. Supplemental course fee. Public Affairs Capstone Experience course.

Credit hours: 5-6
Lecture contact hours:
Lab contact hours:
Typically offered: Fall, Spring

What is changing? Check all boxes that apply.

□Course Deletion	□Course Code	□Course Number	□Title	x Prerequisite
□Credit Hours/Contact Hours		□Periodicity	x Description	

Reason for Proposed Change or Deletion

Prerequisite change to indicate the requirement of new methods course (MTH 411) prior to student teaching. Reference to the portfolio requirement was removed since the past extensive portfolio requirements are no longer in place. Some editorial changes were made ("The teacher" instead of "teacher". "Professional activities of a teacher" was substituted for "school related assignment" for clarity. More general wording (...**completes all required university assignments**) was added to account for the unknown changes in teacher preparation, rather than specify particular requirements like the portfolio).

How Did You Determine the Need For This Change or Deletion?

Course description was examined for accuracy related to current policy and made to match the equivalent MTH 493 description.

____ Check if this is a **non-substantive** change. Distribution for non-substantive changes of 100- through 500-level courses: two originally-signed copies to Faculty Senate; 600- through 900-level courses: three originally-signed copies to Graduate Council. Graduate Council will give two copies to Faculty Senate after approval.

Substantive Change: Department routes according to ART VI, SEC 3B(1-4) of Bylaws of the Faculty. Forward three originally signed forms to one of the following (please check all that apply and send to first council/committee marked). If proposal needs to go through more than one council/committee, forward one additional form for each additional council/committee marked. See Senate Action 11-93/94 for definitions of substantive/non-substantive changes.