Request for Graduate Course Addition

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. **The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.**

College: CITE   Dept/Division: Engineering   Alpha Designator/Number: CE 639   ◉ Graded   ○ CR/NC

Contact Person: Asad Salem   Phone: 304-696-3207

NEW COURSE DATA:

New Course Title: *Civil* Infrastructure Management Systems

Alpha Designator/Number: | C | E | 6 | 3 | 9 | | | |

CE

Title Abbreviation: | I | n | f | r | a | s | t | r | u | c | t | u | r | e | | M | a | n | a | g | e | m | e | n | t |

(Limit of 25 characters and spaces)

Course Catalog Description: (Limit of 30 words): Application of decision analysis, mathematical programming, performance modeling and various heuristics to develop management plans for transportation infrastructure assets, primarily focusing on highway pavements and bridges.

Co-requisite(s): N/A   First Term to be Offered: Fall 2019

Prerequisite(s): Graduate Standing   Credit Hours: 3

Course(s) being deleted in place of this addition (*must submit course deletion form*): _____

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head _____ Date 10/28/18

Registrar _____ 143501 Date 10/29/18

College Curriculum Chair _____ Date 10/31/18

Graduate Council Chair _____ Date 1/26/19

Form updated 10/2011   Page 1 of 5

College: CITE   Department/Division: Engineering   Alpha Designator/Number: CE 639

Provide complete information regarding the new course addition for each topic listed below. Before routing this form, a complete syllabus also must be attached addressing the items listed on the first page of this form.

1. FACULTY: Identify by name the faculty in your department/division who may teach this course.

James Bryce, Ph.D.
Gregory Michaelson, Ph.D., P.E.

2. DUPLICATION: If a question of possible duplication occurs, attach a copy of the correspondence sent to the appropriate department(s) describing the proposal. Enter "*Not Applicable*" if not applicable.

Not Applicable

3. REQUIRED COURSE: If this course will be required by another deparment(s), identify it/them by name. Enter "*Not Applicable*" if not applicable.

Not Applicable

4. AGREEMENTS: If there are any agreements required to provide clinical experiences, attach the details and the signed agreement. Enter "*Not Applicable*" if not applicable.

Not Applicable

5. ADDITIONAL RESOURCE REQUIREMENTS: If your department requires additional faculty, equipment, or specialized materials to teach this course, attach an estimate of the time and money required to secure these items. (Note: Approval of this form does not imply approval for additional resources.) Enter "*Not Applicable*" if not applicable.

Not Applicable

6. COURSE OBJECTIVES: (May be submitted as a separate document)

See the attached syllabus

7. COURSE OUTLINE (May be submitted as a separate document)

See the attached syllabus

8. SAMPLE TEXT(S) WITH AUTHOR(S) AND PUBLICATION DATES (May be submitted as a separate document)

See the bibliography in the attached syllabus

9. EXAMPLE OF INSTRUCTIONAL METHODS (Lecture, lab, internship)

Lecture

10. EXAMPLE EVALUATION METHODS (CHAPTER, MIDTERM, FINAL, PROJECTS, ETC.)

Course project, Homework, Mid-term and Final Exam

11. ADDITIONAL GRADUATE REQUIREMENTS IF LISTED AS AN UNDERGRADUATE/GRADUATE COURSE

12. PROVIDE COMPLETE BIBLIOGRAPHY   (May be submitted as a separate document)

See the attached syllabus

Request for Graduate Course Addition - Page 5

Please insert in the text box below your course summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings):

Department:
Course Number and Title:
Catalog Description:
Prerequisites:
First Term Offered:
Credit Hours:

Department: Engineering *Civil*

Course Number and Title: CE 639: Infrastructure Management Systems

Catalog Description: Application of decision analysis, mathematical programming, performance modeling and various heuristics to develop management plans for transportation infrastructure assets, primarily focusing on highway pavements and bridges.

Prerequisites: Graduate Standing

First Term Offered: Spring 2019

Credit Hours: 3

Course Number/ Title	CE 639: Civil Infrastructure Management Systems – 3 Credit Hour
Semester/Year	Fall / 2019
Days/Time	TBD (Lecture)
Location	WAEC XXXX
Instructor	James Bryce, Ph.D.
Office	WAEC 2301a
Phone	304-696-5653
E-Mail	bryce@marshall.edu
Office/Hours	TBD
University Policies	By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to www.marshall.edu/ academic-affairs and clicking on "Marshall University Policies." Or, you can access the policies directly by going to www.marshall.edu/academic-affairs/policies/. Academic Dishonesty / Academic Dismissal / Computing Services Acceptable Use / Inclement Weather / Students with Disabilities / Academic Probation and Suspension / Academic Rights and Responsibilities of Students / Affirmative Action / Sexual Harassment

Course Description

Application of decision analysis, mathematical programming, performance modeling and various heuristics to develop management plans for transportation infrastructure assets, primarily focusing on highway pavements and bridges.

Course Pre-Requisites / Co-Requisites:

PR: Graduate standing

Required textbooks: N/A – This course will use a variety of available materials published by the Transportation Research Board, Federal Highway Administration, World Bank and other sources freely available online.

Bibliography:

1. U.S. National Archives and Records Administration. Code of Federal Regulations. 23 CFR Part 490. National Performance Management Measures: Assessing Pavement Condition for National Highway Performance Program and Bridge Condition for National Highway Performance Program. 2017.
2. FHWA. Fixing America's Surface Transportation Act or "FAST Act". U.S. Department of

Transportation, Washington, D.C., 2017. https://www.fhwa.dot.gov/fastact/summary.cfm.

3. Cambridge Systematics, Inc. NCHRP Report 632: An Asset Management Framework for the Interstate Highway System. Transportation Research Board of the National Academies, Washington, D.C., 2009.

4. Cambridge Systematics, Inc. NCHRP Report 551: Performance Measures and Targets for Transportation Asset Management. Transportation Research Board of the National Academies, Washington, D.C., 2006.

5. Cambridge Systematics, Inc. NCHRP Report 545: Analytical Tools for Asset Management. Transportation Research Board of the National Academies, Washington, D.C., 2005.

6. International Infrastructure Management Manual (IIMM), International Edition 2011

7. Transportation Asset Management Guide. AASHTO, Washington, D.C., 2002.

8. Hudson, Haas, Uddin, Infrastructure management: integrating design, construction, maintenance, rehabilitation, and renovation, McGraw Hill, 1997.

9. Hendrickson and Au, Project Management for Construction: Fundamental Concepts for Owners, Engineers, Architects and Builders, Chapter 6, "Economic Evaluation of Facility Investments," First Edition originally printed by Prentice Hall, ISBN 0-13-731266-0, 1989 with co-author Tung Au. Second Edition prepared for world wide web publication in 2000.Version 2.2 prepared Summer, 2008. http://pmbook.ce.cmu.edu/ 06_Economic_Evaluation_of_Facility_Investments.html

10. Ang and Tang, Probability Concepts in Engineering, John Wiley & Sons, 2007.

11. Flintsch, G.W. and J.W. Bryant, Jr. Asset Management Data Collection for Supporting Decision Processes. May 2006.

12. FHWA. Transportation Asset Management Case Studies. Pavement Management System: The Washington State Experience. Report No. FHWA IF-08-010. 2008.

Course learning Outcomes

At the conclusion of the course, students will
*   Evaluate the functional and structural condition of transportation infrastructure assets using multiple performance measures
*   Model the expected performance of transportation infrastructure components for time horizons up to 10 years or greater
*   Apply prioritization and optimization techniques to select projects for implementation
*   Compare different infrastructure management alternatives using multiple objectives.
*   Develop maintenance and rehabilitation schedules for infrastructure assets under the conditions of limited budgets
*   Prepare a written report and an oral/visual presentation of a pavement design project.
*   Work as a member of an integrated team to complete the project design, report, and presentation.

Grading:

Grading Basis:				
Course project:	30%	A:	90-100%
Homework:	30%	B:	80-<90%
Mid Semester Exam:	15%	C:	70-<80%
Final Exam:	20%	D:	60-<70%
Participation/Attendance:	5%	F:	0-<60%

Receiving full participation credit requires missing no more than 2 classes and contributing to class discussion.

Attendance:
Attendance will be taken and participation in the in-class examples will be required; lecture discussions will be the primary source for exam questions. Students missing lecture are responsible for obtaining any material covered from the instructor or another student. Out of respect for your colleagues and me, talk only to participate in class (e.g., do not hold a side conversation) and place cell-phones on silent. I reserve the right to develop a cell-phone policy if it becomes an issue.

Relationships between Course, and Degree Profile Outcomes

Course learning Outcomes student will:	How students will practice each outcome in this course	How student achievement each outcome will be assessed in this course
Evaluate the functional and structural condition of transportation infrastructure assets using multiple performance measures	• In-class examples • Homework Assignments	• Homework Assignments • Mid-term and final exams
Model the expected performance of transportation infrastructure components for time horizons up to 10 years or greater	• In-class examples • Homework Assignments	• Homework Assignments • Mid-term and final exams
Apply prioritization and optimization techniques to select projects for implementation	• In-class examples • Homework Assignments	• Homework Assignments • Mid-term and final exams
Compare different infrastructure management alternatives using multiple objectives.	• In-class examples • Homework Assignments	• Homework Assignments • Mid-term and final exams
Develop maintenance and rehabilitation schedules for infrastructure assets under the conditions of limited budgets	• In-class examples • Homework Assignments	• Homework Assignments • Mid-term and final exams
Prepare a written report and an oral/ visual presentation of a pavement design project.	• Semester group project	• Course project report • Final course project presentation
Work as a member of an integrated team to complete the project design, report, and presentation.	• Semester group project	• Course project report • Final course project presentation

Homework Requirements
Students are encouraged to discuss homework problems, check homework answers against each other and to assist each other in understanding the course material. Produce and submit your own work unless it is specified as a group assignment when assigned.

Homework will periodically be assigned throughout the semester and will be typically due prior to the beginning of lecture one week after the date of assignment (unless otherwise stated). Homework will generally be assigned on Thursday via blackboard; active monitoring of blackboard assignments is strongly recommended. Homework assignments are to be turned in electronically on blackboard. Paper assignments handed to me in class will be considered 1-day late.

An assignment that is illegible or is presented in an unprofessional manner will not be accepted.

- Late assignments will be accepted at a 25% penalty per day (including weekends)
- Late assignments will not be accepted after graded assignments have been returned (generally 1

week)
- Homework must be completed in a memo format, complete with a cover letter.

Tentative Schedule (subject to change)

Date	Topics
Week 1	Infrastructure Management Frameworks
Week 2	Performance and Level of Service – Selecting and Calculating Performance Measures
Week 3	Performance and Level of Service, Cont'd – Measuring and Evaluating the Performance of Transportation Networks with Non-destructive Means
Week 4	Lifecycle Cost Analysis Using Deterministic and Probabilistic (Monte Carlo) Approaches
Week 5	Lifecycle Environmental Assessment and Sustainability
Week 6	Continuous Performance Modeling
Week 7	Discrete (Markov) Performance Modeling
Week 8	Course Project Proposals Mid-Term Exam
Week 9	Prioritization and Optimization
Week 10	Prioritization and Optimization, Cont'd
Week 11	Risk and Reliability Analysis
Week 12	Maintenance and Rehabilitation Alternatives
Week 13	Maintenance and Rehabilitation Alternatives, Cont'd
Week 14	Developing Lifecycle Management Plans
Week 15	Final Project Presentations and Final Exam Review

Honor (Academic Dishonesty) Policy
The university policy will be enforced. See the graduate student catalog provided at the link below. Some examples of academic dishonesty include (but are not limited to) copying another student's assignment, lying about being ill on the day of a test, using a cell phone or other communication device during a test, quoting an author's writing (including material found on the internet) without giving due credit.
http://www.marshall.edu/catalog/files/Gr_2018-19_Published_10-01-18.pdf

Accommodations for Disabilities
Students with disabilities must contact the Office of Disabled Student Services in Prichard Hall 117, phone 696-2271 to provide documentation of their disability to ensure proper accommodation. Please visit http://www.marshall.edu/disabled for additional information.

Sexual Harassment
This course will follow Marshall University's policy on Sexual Harassment, which can be found on p. 71 of the 2018– 2019 online graduate catalog.
http://www.marshall.edu/catalog/files/Gr_2018-19_Published_10-01-18.pdf

Request for Graduate Non-Curricular Changes

PLEASE USE THIS FORM FOR ALL NON-CURRICULAR CHANGE REQUESTS (changes in admission requirements or requirements for graduation, changes in existing or new policies/procedures, changes in program descriptions in catalog, general language changes in catalog).

SIGNATURES may not be required, depending on the nature of the request and from where it originates. Consult Graduate Council Chair.

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair.
3. **The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.**

College: **CITE**   Dept/Division: **AS&T**

Contact Person: **Scott Simonton**   Phone: **6-2045**
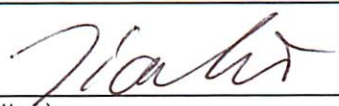
Rationale for Request:

Main change is making Chem 205 the required course for admission instead of Chem 211. Most incoming students already have Chem 211, but many incoming students do not necessarily have a " hard science" undergrad background and wish to pursue a more policy/law/regulatory branch of ES, for which Chem 211 is not necessary. No courses that count toward the ES MS have a Chem 211 requirement that don't already list as a prerequisist. No required course has a Chem 211 prerequisite.

Additionally, clarifying the work experience substitute.

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.
NOTE: all requests may not require all signatures.

Department/Division Chair _____   Date 10-26-18

Registrar _____   Date 10-1-18

College Curriculum Committee Chair _____   Date 12/3/18
(or Dean if no college curriculum committee)

Graduate Council Chair _____   Date 1/26/19

NOTE: please complete information required on the following pages before obtaining signatures above.

1. **Current Catalog Description (if applicable)**: Please insert the catalog description from the current catalog for entries you would like to change.

In addition to the general requirements all students entering the graduate Environmental Science program must have completed prior to admission the following courses OR their equivalent:

Chemistry 211 and Math 130 with a grade of C or better, AND a minimum total of FIVE (5) courses/ competencies, relevant to environmental science, from the following: Chemistry (200 level or above); Physics (200 level or above); Biology; Geology; Geography; Statistics; Soil Science; Law; Health and Economics; 10 years relevant work experience.

2. **Edits to current description**: Attach or insert a PDF copy of the current catalog description prepared in MS WORD with strikethroughs to mark proposed deletions and use the highlight function to indicate proposed new text.

Attached

3. **New Catalog Description**: Provide a "clean" copy of your proposed description without strikethroughs or highlighting. This should be what you are proposing for the new description.

In addition to the general requirements all students entering the graduate Environmental Science program must have completed prior to admission the following courses OR their equivalent: Chemistry 205 and Math 130 with a grade of C or better, AND a minimum total of FIVE (5) courses/ competencies, relevant to environmental science, from the following: Chemistry (200 level or above); Physics (200 level or above); Biology; Geology; Geography; Statistics; Soil Science; Law; Health and Economics; or 10 years relevant work experience.

Please insert below your proposed change information for the Graduate Council agenda.

Type of change request: Admission Requirements

Department: Applied Science and Technology

Degree program: Environmental Science

Effective date (fall/spring/summer, year): Fall 2019

In addition to the general requirements all students entering the graduate Environmental Science program must have completed prior to admission the following courses OR their equivalent:

Chemistry ~~211~~ 205 and Math 130 with a grade of C or better, AND a minimum total of FIVE (5) courses/ competencies, relevant to environmental science, from the following: Chemistry (200 level or above); Physics (200 level or above); Biology; Geology; Geography; Statistics; Soil Science; Law; Health and Economics; or 10 years relevant work experience.

Request for Graduate Addition, Deletion, or Change of a Major or Degree

NOTE: Before you submit a request for a new Major or Degree, you must submit an INTENT TO PLAN form. Only after the INTENT TO PLAN goes through the approval process are you ready to submit this request for a new Major or Degree. For detailed information on new programs please see: http://wvhepcdoc.wvnet.edu/resources/133-11.pdf.

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one PDF copy without signatures to the Graduate Council Chair.
3. **The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.**

College: CITE

Dept/Division: Computer Science

Contact Person: Wook-Sung Yoo

Phone: x5452

Degree Program | Information Systems

Check action requested: ☐ Addition ☐ Deletion ☒ Change

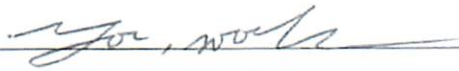Effective Term/Year   Fall 20 ☐   Spring 20 19   (Summer 20 19) LH

Information on the following pages must be completed before signatures are obtained.

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head _Yoo, Wook_	Date _Oct. 31, '18_
College Curriculum Chair _____	Date _10/31/18_
College Dean _Wark_	Date _Oct. 31, 2018_
Graduate Council Chair _Ron Hunal_	Date _1/26/19_
Provost/VP Academic Affairs _____	Date _____
Presidential Approval _____	Date _____
Board of Governors Approval _____	Date _____
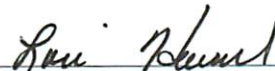
Please provide a rationale for addition, deletion, change: (May attach separate page if needed)

The Master of Science in Information Systems program (MSIS) was established at Marshall University in 1997 serving primarily working professionals in the area. Since then, technology has been changed rapidly and the regional demographics have also changed significantly. To answer the new demand in the field of information systems, the Weisberg Division of Computer Science conducted the review of the current curriculum over the year by the constituents of the program (Industry - Advisory Board, alumni, students, and faculty) and proposes a revised 30 credit curriculum of the MSIS program with mainly following changes: (1) Admission requirement change by providing two bridge courses of computer programming and database for applicants lacking in technical background before full admission, and (2) Degree requirement change by changing required courses and updating existing courses with new and advanced topics needed in the job market. We believe this change of the curriculum will strengthen the quality of the program and improve its enrollment.

Please describe any changes in curriculum:
List course number, title, credit hours. Note whether each course is required or optional. Enter NONE if no change. (May attach separate page if needed)
IS 605, Systems Analysis Techniques, 3 credit, required
IS 610, Systems Design, 3 credit, required
IS 622, Information Structures 2, 3 credit, required
IS 698, Internship, 3 credit, optional

1. ADDITIONAL RESOURCE REQUIREMENTS: If your program requires additional faculty, equipment or specialized materials to ADD or CHANGE this major or degree, attach an estimate of the time and money required to secure these items.
NOTE: Approval of this form does not imply approval for additional resources. Enter NONE if not applicable.

None

2. NON-DUPLICATION: If a question of possible duplication occurs, attach a copy of the correspondence sent to the appropriate department(s) describing the request and any response received from them. Enter NONE if not applicable.

None

For catalog changes as a result of the above actions, please fill in the following pages.

3. *Current* Catalog Description

Insert the *Current* Catalog Description and page number from the latest catalog for entries you would like to change.
(May attach separate page if needed)

See attachment

4. *Edits* to the Current Description

Attach a PDF copy of the current catalog description prepared in MS WORD with strikethroughs to mark proposed deletions and use the highlight function to indicate proposed new text.

5. *New* Catalog Description

Insert a 'clean' copy of your proposed description, i.e., no strikethroughs or highlighting included. This should be what you are proposing for the new description. (May attach separate page if needed)

INFORMATION SYSTEMS, M.S.

Program Description
The Information Systems program addresses the effective analysis, design, creation, management, and evaluation of computing systems for individuals and organizations. The Information-systems professional is to understand and improve the ways organizations derive value from information and our Information Systems program offers an immersive educational experience to students at the intersection of business, technology, and the human element. An MS in Information Systems degree provides graduates with the knowledge and skills to:
• Use information technology to improve organizational effectiveness.
• Manage complex business and information system challenges.
¥ Communicate and lead the team effectively in defining business needs and opportunities working with colleagues

Admission Requirements
Applicants should follow the admissions process stated in the graduate catalog or the graduate admissions web site. A four-year Bachelor's degree in the majors related to Information System with GPA of 2.75 or higher out of 4.0 is required. Applicants with a four-year bachelor degree in a major other than information system related program may be admitted to the program with a condition of successful completion of the following two bridge courses with a grade B or above in the first semesters of the program:
• Programming language (CS 110)
• Database Management System (CS 410)
Foreign nationals must provide proof of English proficiency with a minimum score 6.5 in IELTS or 80 on TOEFL IBT (or 550 paper based) and must have met all other admission criteria prior to registering for the first semester of courses. Applicants must submit official transcripts of all college-level courses. Whether a student meets the above requirements will be determined by the Chair or designee of the Weisberg Division of Computer Science, based on the information provided in the admission application and transcripts.

Degree Requirements
Students must complete 30 graduate credit hours, including at least 24 credit hours at Marshall University. The degree consists of 21 credit hours of required courses and 9 hours of approved elective courses.

Required courses (21 CR):
IS 600 Management Information Systems
IS 605 Systems Analysis and Design
IS 610 Systems Quality Assurance
IS 621 Information Structures I
IS 622 Emerging Technologies in Information Systems
IS 624 Data Warehousing
IS 647 IS Disaster Planning and Recovery

Electives (9 CR)
Three courses offered by the graduate programs of the Weisberg Division of Computer Science and approved by the student's advisor to complete the program. Thesis option as described below can be used to replace 6 credit electives:
• Thesis option (6 CR)
The Thesis option offers a student an opportunity for serious investigation into an area of interest by completing a 3 credit Thesis I course and a 3 credit Thesis II course. Thesis work is typically conducted over two semesters and the 6 CR of the thesis option courses cannot be combined in a semester. A thesis option can be taken after the completion of 12 credit hours. Students must summarize their thesis work in the form of a formal written document and deliver an oral presentation.

Request for Graduate Addition, Deletion, or Change of a Major or Degree-Page 5

Please insert in the text box below your change summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings):

Department:
Major or Degree:
Type of Change: *(addition, deletion, change)*
Rationale:

Department: Computer Science
Major or Degree: M.S. in Information Systems
Type of Change: change
Rationale: The Master of Science in Information Systems program (MSIS) was established at Marshall University in 1997 serving primarily working professionals in the area. Since then, technology has been changed rapidly and the regional demographics have also changed significantly. To answer the new demand in the field of information systems, the Weisberg Division of Computer Science conducted the review of the current curriculum over the year by the constituents of the program (industry - Advisory Board, alumni, students, and faculty) and proposes a revised 30 credit curriculum of the MSIS program with mainly following changes: (1) Admission requirement change by providing two bridge courses of computer programming and database for applicants lacking in technical background before full admission, and (2) Degree requirement change by changing required courses and updating existing courses with new and advanced topics needed in the job market. We believe this change of the curriculum will strengthen the quality of the program and improve its enrollment.

INFORMATION SYSTEMS, M.S.

Program Description

The Information Systems program prepares participants to be effective users, designers, and developers of information systems, people who can add value to processes and products in organizations. The program also helps participants improve their professional writing, presentation, and teamwork abilities. Specific objectives expected of graduates include:

- The ability to describe a situation as a system, specifying components, boundaries, and interfaces
- Communication skills for effectively leading teams, collaborating with managers in defining needs and opportunities, and assisting colleagues
- Knowledge of the basic hardware and software components of computer systems and their configurations
- The ability to develop specifications for a software system in terms of functions, modules, and interfaces
- The ability to gather and use information needed by information systems professionals
- Mastery of the technical and human skills needed to successfully deploy information technologies in various organizational settings.

Admission Requirements

Applicants should follow the admissions process described in this catalog or at the Graduate Admissions website *www.marshall.edu/graduate/admissions/how-to-apply-for-admission.*

Each applicant for admission to the M. S. in Information Systems program must satisfy at least TWO of the following criteria:

- Score at the mean or above on the verbal GRE;
- Score at the mean or above on the quantitative GRE;
- Score at the mean or above on the analytical writing portion of the GRE;
- Score at the mean or above on the Miller Analogies Test;
- Have an undergraduate GPA of 2.75 or above;

Applicants with a wide variety of backgrounds are welcome.

In addition to the admission requirements stated above, an applicant wishing to major in Information Systems must have the following credentials and abilities:

- Ability to write structured programs in a high-level language and familiarity with computer systems
- Basic mathematical ability. College algebra with a grade of B would minimally meet this requirement
- Ability to use computer software for word processing, spreadsheet analysis, telecommunications, and data management
- Ability to write a coherent, grammatically correct report

Prospective students without the skills outlined above should take the following courses or their equivalents before entering the degree program:

- Computer Systems and Programming: IS 510 or equivalent
- Mathematical Maturity: College algebra
- Communication Skills: This need will normally be addressed by requirements within the program. In some cases, additional work may be required.

Degree Requirements

Students must complete 36 graduate credit hours, including at least 24 credit hours at Marshall University. The degree consists of 27 credit hours of required courses and 9 hours of approved elective courses.

Required courses:

IS 600 Management Information Systems
IS 605 Systems Analysis Techniques
IS 610 Systems Design
IS 621 Information Structures 1
IS 622 Information Structures 2
IS 623 Database Management
EM 660 Project Management
TE 698 Comprehensive Project Formulation or IS 625 Software Engineering
TE 699 Comprehensive Project or IS 691 Comprehensive Project – after completion of min. 27 hours

Electives:

Three or more elective courses approved by the student's advisor complete the program. In addition to Information Systems courses, these may include courses offered by other majors and by other institutions.

INFORMATION SYSTEMS, M.S.

Program Description

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- Communication skills for effectively leading teams, collaborating with managers in defining needs and opportunities, and assisting colleagues
- Knowledge of the basic hardware and software components of computer systems and their configurations
- The ability to develop specifications for a software system in terms of functions, modules, and interfaces
- The ability to gather and use information needed by information systems professionals
- Mastery of the technical and human skills needed to successfully deploy information technologies in various organizational settings.

The Information Systems program addresses the effective analysis, design, creation, management, and evaluation of computing systems for individuals and organizations. The information-systems professional is to understand and improve the ways organizations derive value from information and our Information Systems program offers an immersive educational experience to students at the intersection of business, technology, and the human element. An MS in Information Systems degree provides graduates with the knowledge and skills to:

- Use information technology to improve organizational effectiveness.
- Manage complex business and information system challenges.
- Communicate and lead the team effectively in defining business needs and opportunities working with colleagues

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- Programming language (CS 110)
- Database Management System (CS 410)

Foreign nationals must provide proof of English proficiency with a minimum score 6.5 in IELTS or 80 on TOEFL IBT (or 550 paper based) and must have met all other admission criteria prior to registering for the first semester of courses. Applicants must submit official transcripts of all college-level courses. Whether a student meets the above requirements will be determined by the Chair or designee of the Weisberg Division of Computer Science, based on the information provided in the admission application and transcripts.

Degree Requirements

Students must complete ~~36~~ 30 graduate credit hours, including at least 24 credit hours at Marshall University. The degree consists of ~~27~~ 21 credit hours of required courses and 9 hours of approved elective courses.

Required courses:

IS 600 Management Information Systems
IS 605 ~~Systems Analysis Techniques~~ Systems Analysis and Design
IS 610 ~~Systems Design~~ Systems Quality Assurance
IS 621 Information Structures 1
IS 622 ~~Information Structures 2~~ Emerging Technologies
~~IS 623 Database Management~~
IS 624 Data Warehousing
IS 647 IS Disaster Planning and Recovery
~~EM 660 Project Management~~
~~TE 698 Comprehensive Project Formulation or IS 625 Software Engineering~~
~~TE 699 Comprehensive Project or IS 691 Comprehensive Project — after completion of min. 27 hours~~

Electives:

~~Three or more elective courses approved by the student's advisor complete the program. In addition to Information Systems courses, these may include courses offered by other majors and by other institutions.~~

Three courses offered by the graduate programs of the Weisberg Division of Computer Science and approved by the student's advisor to complete the program. Thesis option as described below can be used to replace 6 credit electives:

- Thesis option (6 CR)

   The Thesis option offers a student an opportunity for serious investigation into an area of interest by completing a 3 credit Thesis I course and a 3 credit Thesis II course. Thesis work is typically conducted over two semesters and the 6 CR of the thesis option courses cannot be combined in a semester. A thesis option can be taken after the completion of 12 credit hours. Students must summarize their thesis work in the form of a formal written document and deliver an oral presentation.

Request for Graduate Addition, Deletion, or Change of a Major or Degree

NOTE: Before you submit a request for a new Major or Degree, you must submit an INTENT TO PLAN form. Only after the INTENT TO PLAN goes through the approval process are you ready to submit this request for a new Major or Degree. For detailed information on new programs please see: http://wvhepcdoc.wvnet.edu/resources/133-11.pdf.

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one PDF copy without signatures to the Graduate Council Chair.
3. **The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.**

College: **Business**   Dept/Division: DMPNA/Management

Contact Person: Marjorie McInerney   Phone: 696-2675

Degree Program Doctor of Management Practice in Nurse Anesthesia   GB8D   *Sgd* 12/10/18

Check action requested: ☐ Addition   ☐ Deletion   ☒ Change   CIP 513802

Effective Term/Year   Fall 20 [ ]   Spring 20 [ ]   Summer 20 [19]

Information on the following pages must be completed before signatures are obtained.

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head _[signature]_	Date 12/7/18
College Curriculum Chair _[signature]_	Date 10 DEC 18
College Dean _A. [signature]_	Date 12/10/2018
Graduate Council Chair _[signature]_	Date 1/26/19
Provost/VP Academic Affairs _____	Date _____
Presidential Approval _____	Date _____
Board of Governors Approval _____	Date _____

Form updated 3/2012   Page 1 of 5

Please provide a rationale for addition, deletion, change: (May attach separate page if needed)

We are requesting a name change for the Doctor of Management Practice in Nurse Anesthesia (DMPNA) to the Doctor of Nurse Anesthesia Practice and Management (DNAP). This is necessary to comply with the accrediting agency The Council on Accreditation of Nurse Anesthesia Educational Programs (GOA). The GOA has mandated that all doctoral programs carry the Doctor of Nurse Anesthesia Practice or the Doctor of Nurse Anesthesia titles.

Please describe any changes in curriculum:
List course number, title, credit hours. Note whether each course is required or optional. Enter NONE if no change. (May attach separate page if needed)
NONE

1. ADDITIONAL RESOURCE REQUIREMENTS: If your program requires additional faculty, equipment or specialized materials to ADD or CHANGE this major or degree, attach an estimate of the time and money required to secure these items.
NOTE: Approval of this form does not imply approval for additional resources. Enter NONE if not applicable.

NONE

2. NON-DUPLICATION: If a question of possible duplication occurs, attach a copy of the correspondence sent to the appropriate department(s) describing the request and any response received from them. Enter NONE if not applicable.

NONE

For catalog changes as a result of the above actions, please fill in the following pages.

3. *Current* Catalog Description

Insert the *Current* Catalog Description and page number from the latest catalog for entries you would like to change.
(May attach separate page if needed)

MANAGEMENT PRACTICE IN NURSE ANESTHESIA, D.M.P.N.A. Program Description The Management Practice in Nurse Anesthesia doctoral program is an innovative practice doctorate developed jointly by the Lewis College of Business and the Charleston Area Medical Center Health Education and Research Institute School of Nurse Anesthesia (CAMC). The program offers a unique combination of advanced professional nurse anesthesia practice and entrepreneurial business management training. The 36-month program is delivered in an integrated classroom and clinical format designed to prepare certified registered nurses for a career in the field of nurse anesthesia. At the end of the program, graduates will have completed 127 hours of study and clinical practice as well as a comprehensive doctoral research project. Students attend classes at the Marshall University South Charleston campus as well as CAMC's medical facilities in Charleston. The program is accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs (GOA). The GOA is fully accredited by the U.S. Department of Education (USDE) and the Council for Higher Education Accreditation (CHEA).

4. *Edits* to the Current Description

Attach a PDF copy of the current catalog description prepared in MS WORD with strikethroughs to mark proposed deletions and use the highlight function to indicate proposed new text.

5. *New* Catalog Description

Insert a 'clean' copy of your proposed description, i.e., no strikethroughs or highlighting included. This should be what you are proposing for the new description. (May attach separate page if needed)

Doctor of Nurse Anesthesia Practice and Management, D.N.A.P. doctoral program is an innovative practice doctorate developed jointly by the Lewis College of Business and the Charleston Area Medical Center Health Education and Research Institute School of Nurse Anesthesia (CAMC). The program offers a unique combination of advanced professional nurse anesthesia practice and entrepreneurial business management training. The 36-month program is delivered in an integrated classroom and clinical format designed to prepare certified registered nurses for a career in the field of nurse anesthesia. At the end of the program, graduates will have completed 127 hours of study and clinical practice as well as a comprehensive doctoral research project. Students attend classes at the Marshall University South Charleston campus as well as CAMC's medical facilities in Charleston. The program is accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs (COA). The COA is fully accredited by the
U.S. Department of Education (USDE) and the Council for Higher Education Accreditation (CHEA).

Request for Graduate Addition, Deletion, or Change of a Major or Degree-Page 5

Please insert in the text box below your change summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings):

Department:
Major or Degree:
Type of Change: *(addition, deletion, change)*
Rationale:

Department: Management
Major or Degree: DMPNA (Old name) DNAP (New name)
Type of Change: Degree Name change
Rationale: Required/mandated by accrediting agency

Request for Graduate Non-Curricular Changes

PLEASE USE THIS FORM FOR ALL NON-CURRICULAR CHANGE REQUESTS (changes in admission requirements or requirements for graduation, changes in existing or new policies/procedures, changes in program descriptions in catalog, general language changes in catalog).

SIGNATURES may not be required, depending on the nature of the request and from where it originates. Consult Graduate Council Chair.

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair.
3. **The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.**
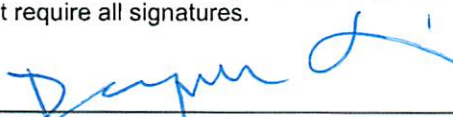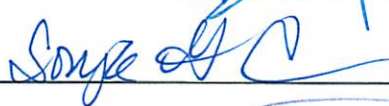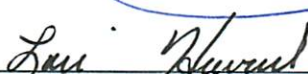
College: **Business**   Dept/Division: **DMPNA/Management**

Contact Person: **Marjorie McInerney**   Phone: **696-2675**

Rationale for Request:

We are requesting a name change for the Doctor of Management Practice in Nurse Anesthesia (DMPNA) to the Doctor of Nurse Anesthesia Practice and Management (DNAP). This is necessary to comply with the accrediting agency The Council on Accreditation of Nurse Anesthesia Educational Programs (COA). The COA has mandated that all doctoral programs carry the Doctor of Nurse Anesthesia Practice or the Doctor of Nurse Anesthesia titles.

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.
NOTE: all requests may not require all signatures.

Department/Division Chair _____ Date ~~spring 2019~~ 12/7/18

Registrar _____ Date 12-10-18

College Curriculum Committee Chair _____ Date 10 DEC 18
(or Dean if no college curriculum committee)

Graduate Council Chair _____ Date 1/26/19

NOTE: please complete information required on the following pages before obtaining signatures above.

Form updated 1/2017   Page 1 of 5

1. **Current Catalog Description (if applicable):** Please insert the catalog description from the current catalog for entries you would like to change.

MANAGEMENT PRACTICE IN NURSE ANESTHESIA, D.M.P.N.A. Program Description The Management Practice in Nurse Anesthesia doctoral program is an innovative practice doctorate developed jointly by the Lewis College of Business and the Charleston Area Medical Center Health Education and Research Institute School of Nurse Anesthesia (CAMC). The program offers a unique combination of advanced professional nurse anesthesia practice and entrepreneurial business management training. The 36-month program is delivered in an integrated classroom and clinical format designed to prepare certified registered nurses for a career in the field of nurse anesthesia. At the end of the program, graduates will have completed 127 hours of study and clinical practice as well as a comprehensive doctoral research project. Students attend classes at the Marshall University South Charleston campus as well as CAMC's medical facilities in Charleston. The program is accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs (COA). The COA is fully accredited by the U.S. Department of Education (USDE) and the Council for Higher Education Accreditation (CHEA).

2. **Edits to current description**: Attach or insert a PDF copy of the current catalog description prepared in MS WORD with strikethroughs to mark proposed deletions and use the highlight function to indicate proposed new text.

Doctor of Nurse Anesthesia Practice and Management, D.N.A.P. ~~MANAGEMENT PRACTICE IN NURSE ANESTHESIA, D.M.P.N.A. Program Description The Management Practice in Nurse Anesthesia doctoral~~ program is an innovative practice doctorate developed jointly by the Lewis College of Business and the Charleston Area Medical Center Health Education and Research Institute School of Nurse Anesthesia (CAMC). The program offers a unique combination of advanced professional nurse anesthesia practice and entrepreneurial business management training. The 36-month program is delivered in an integrated classroom and clinical format designed to prepare certified registered nurses for a career in the field of nurse anesthesia. At the end of the program, graduates will have completed 127 hours of study and clinical practice as well as a comprehensive doctoral research project. Students attend classes at the Marshall University South Charleston campus as well as CAMC's medical facilities in Charleston. The program is accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs (COA). The COA is fully accredited by the U.S. Department of Education (USDE) and the Council for Higher Education Accreditation (CHEA).

3. **New Catalog Description:** Provide a "clean" copy of your proposed description without strikethroughs or highlighting. This should be what you are proposing for the new description.

Doctor of Nurse Anesthesia Practice and Management, D.N.A.P. doctoral program is an innovative practice doctorate developed jointly by the Lewis College of Business and the Charleston Area Medical Center Health Education and Research Institute School of Nurse Anesthesia (CAMC). The program offers a unique combination of advanced professional nurse anesthesia practice and entrepreneurial business management training. The 36-month program is delivered in an integrated classroom and clinical format designed to prepare certified registered nurses for a career in the field of nurse anesthesia. At the end of the program, graduates will have completed 127 hours of study and clinical practice as well as a comprehensive doctoral research project. Students attend classes at the Marshall University South Charleston campus as well as CAMC's medical facilities in Charleston. The program is accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs (COA). The COA is fully accredited by the U.S. Department of Education (USDE) and the Council for Higher Education Accreditation (CHEA).

Request for Graduate Non-Curricular Changes – Page 5

Please insert below your proposed change information for the Graduate Council agenda.

Type of change request: Degree Name Change

Department: DMPNA/Management

Degree program: Doctor of Management Practice in Nurse Anesthesia

Effective date (fall/spring/summer, year): spring 2019

Request for Graduate Course Change

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. **The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.**

College: CITE   Dept/Division: AS&T   Current Alpha Designator/Number: ES 550

Contact Person: D. Scott Simonton   Phone: 6-2045

CURRENT COURSE DATA:

Course Title: Environmental Law

Alpha Designator/Number: | E | S | 5 | 5 | 0 | | | | |

Title Abbreviation: | | | | | | | | | | | | | | | | | | | | | | | | |

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1. Complete this **five** page form in its entirety and route through the departments/committees below for changes to a course involving: course title, alpha designator, course number, course content, credit hours, or catalog description.
2. If this change will affect other departments that require this course, please send a memo to the affected department and include it with this packet, as well as the response received from the affected department.
3. If the changes made to this course will make the course similar in title or content to another department's courses, please send a memo to the affected department and include it with this packet as well as the response received from the affected department.
4. List courses, if any, that will be deleted because of this change (*must submit course deletion form*).
5. If the faculty requirements and/or equipment need to be changed upon approval of this proposal, attach a written estimate of additional needs.

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head	_(signature)_	Date 10-24-18
Registrar	_(signature)_	Date 10-25-18
College Curriculum Chair	_(signature)_	Date 11/16/18
Graduate Council Chair	_(signature)_	Date 1/26/19

Form updated 10/2011   Page 1 of 5

College: CITE   Department/Division: AS&T   Alpha Designator/Number: ES550

Provide complete information regarding the course change for each topic listed below.

Change in CATALOG TITLE: ☒ YES   ☐ NO

From | E | n | v | i | r | o | n | m | e | n | t | a | l | | L | a | w | | | | | | | | | | | | | (limited to 30 characters and spaces)

To | E | n | v | i | o | n | m | e | n | t | a | l | | L | a | w | | a | n | d | | P | o | l | i | c | y | | |

If Yes, Rationale: Combining two courses - Env Law and Env Policy as the subject matter significantly overlaps. Deleting Env Policy. The two courses are redundant.

Change in COURSE ALPHA DESIGNATOR:

From: [ ][ ][ ][ ] To [ ][ ][ ][ ]   ☐ YES   ☒ NO

If Yes, Rationale

Change in COURSE NUMBER: ☐ YES   ☒ NO

From: [ ][ ][ ][ ] To: [ ][ ][ ][ ]

If Yes, Rationale

Change in COURSE GRADING

From ☐ Grade To ☐ Credit/No Credit

Rationale

Change in CATALOG DESCRIPTION: ☒ YES   ☐ NO   IF YES, fill in below:

From: Introduction to major federal environmental legislation and related state programs, including policy issues, judicial review, and practical effects. Includes CERCLA, RCRA, Clean Water Act, Clean Air Act, NEPA, ESA, and SDWA.

To: Introduction to major federal environmental legislation and related state programs, judicial review, and practical effects, and to processes for formulation and development of environmental policy.

If Yes Rationale: Combining descriptions from the two courses into one.

Request for Graduate Course Change

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. *The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.*

College: CITE   Dept/Division: AS&T   Current Alpha Designator/Number: ES 550

Contact Person: D. Scott Simonton   Phone: 6-2045

CURRENT COURSE DATA:

Course Title: Environmental Law

Alpha Designator/Number: | E | S | 5 | 5 | 0 | | | | |

Title Abbreviation: | E | n | v | | L | a | w | | | | | | | | | | | | | | | | | |

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1. Complete this **five** page form in its entirety and route through the departments/committees below for changes to a course involving: course title, alpha designator, course number, course content, credit hours, or catalog description.
2. If this change will affect other departments that require this course, please send a memo to the affected department and include it with this packet, as well as the response received from the affected department.
3. If the changes made to this course will make the course similar in title or content to another department's courses, please send a memo to the affected department and include it with this packet as well as the response received from the affected department.
4. List courses, if any, that will be deleted because of this change (*must submit course deletion form*).
5. If the faculty requirements and/or equipment need to be changed upon approval of this proposal, attach a written estimate of additional needs.

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head _____   Date _____

Registrar _____   Date _____

College Curriculum Chair _____   Date _____

Graduate Council Chair _____   Date _____

College: CITE   Department/Division: AS&T   Alpha Designator/Number: ES550

Provide complete information regarding the course change for each topic listed below.

Change in CATALOG TITLE: ☒ YES   ☐ NO

From | E | n | v | i | r | o | n | m | e | n | t | a | l | | L | a | w | | | | | | | | | | | | | | (limited to 30 characters and spaces)

To | E | n | v | i | r | o | n | m | e | n | t | a | l | | L | a | w | | a | n | d | | P | o | l | i | c | y | | |

If Yes, Rationale: Combining two courses - Env Law and Env Policy as the subject matter significantly overlaps. Deleting Env Policy. The two courses are redundant.

Change in COURSE ALPHA DESIGNATOR:

From: [   ] To [   ]   ☐ YES   ☒ NO

If Yes, Rationale:

Change in COURSE NUMBER: ☐ YES   ☒ NO

From: [   ] To: [   ]

If Yes, Rationale:

Change in COURSE GRADING

From ☐ Grade To ☐ Credit/No Credit

Rationale:

Change in CATALOG DESCRIPTION: ☒ YES   ☐ NO   IF YES, fill in below:

From: Introduction to major federal environmental legislation and related state programs, including policy issues, judicial review, and practical effects. Includes CERCLA, RCRA, Clean Water Act, Clean Air Act, NEPA, ESA, and SDWA.

To: Introduction to major federal environmental legislation and related state programs, judicial review, and practical effects, and to processes for formulation and development of environmental policy.

If Yes Rationale: Combining descriptions from the two courses into one.

Change in COURSE CREDIT HOURS: ☐ YES ☒ NO   If YES, fill in below:

NOTE: If credit hours increase/decrease, please provide documentation that specifies the adjusted work requirements.

From

To

Change in COURSE CONTENT: ☐ YES ☒ NO

From

To

Rationale

Form updated 10/2011

College: CITE   Department: AS&T

Course Number/Title ES 550 Environmental Law

1. REQUIRED COURSE: If this course is required by another department(s), identify it/them by name and attach the written notification you sent to them announcing to them the proposed change and any response received. Enter NOT APPLICABLE if not applicable.

Not Applicable

2. COURSE DELETION: List any courses that will be deleted because of this change. A *Course Deletion* form is also required. Enter NOT APPLICABLE if not applicable.

ES 662 Environmental Policy

3. ADDITIONAL RESOURCE REQUIREMENTS: If your department requires additional faculty, equipment, or specialized materials as a result of this change, attach an estimate of the time and cost etc. required to secure these items. (NOTE: approval of this form does not imply approval for additional resources. Enter NOT APPLICABLE if not applicable.

Not Applicable

Please insert in the text box below your course change summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings) based on the appropriate change:

COURSE DESCRIPTION CHANGE	COURSE NUMBER CHANGE	COURSE TITLE CHANGE
Department:	Department:	Department:
Course Number and Title:	Current Course Number/Title:	Current Course Number/Title:
Rationale:	New Course Number:	New Course Title:
Course Description (old)	Rationale:	Rationale:
Course Description: (new)	Catalog Description:	Catalog Description:
Catalog Description:	Credit hours:	

COURSE TITLE CHANGE
Department: CITE AS&T
Current Course Number/Title: ES 550 Environmental Law
New Course Title: ES 550 Environmental Law and Policy
Rationale: Combines two existing courses - Env Law and Env Policy - as the content of the two courses largely overlaps and is redundant.
Catalog Description: Introduction to major federal environmental legislation and related state programs, judicial review, and practical effects, and to processes for formulation and development of environmental policy.

Request for Graduate Course Deletion

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one PDF copy (without signatures), to the Graduate Council Chair. If attachments included, merge into a single file.
3. **The Graduate Council cannot process this application until it has received both the PDF copy and signed hard copy.**
4. Additionally, attach a copy of your written notification and any response(s) regarding this course deletion to other Departments/Divisions which advise students to enroll in this course as a prerequisite, co-requisite, or as an approved elective.

College CITE   Dept/Div. AS&T

Contact Person D. Scott Simonton   Phone 6-2045

Current Course Number and Title ES 662 Environmental Policy

Rationale for Course Deletion Combining this course with ES 550 Env Law into ES 550 Env Law and Policy

Final term and year this course is to be offered: Fall 20 |17| Spring 20 | | Summer 20 | |

Course being ADDED in place of this DELETION. NOTE: A course ADDITION request form is also required.

Course Number and Title   Credit Hrs.

Signatures: if disapproved at any level, do not sign. Return to previous/signer with recommendation attached.

Dept. Chair/Division Head _____ Date 10-24-18

Registrar _____ Date 10-25-18

College Curriculum Chair _____ Date 11/16/18

Graduate Council Chair _____ Date 1/26/19

Request for Graduate Course Deletion-Page 2

Please insert in the text box below your course deletion summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings):

Department:
Course Number and Title:
Rationale for deletion:
Final Term Offered:
Courses added *(if any)*:

Department: CITE AS&T
Course Number and Title: ES 662 Environmental Policy
Rationale for deletion: Combining content with ES 550 Env Law into ES 550 Env Law and Policy
Final Term Offered: F 17
Courses added (if any):

Request for Graduate Course Change

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. **The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.**

College: CITE   Dept/Division: Computer Science   Current Alpha Designator/Number: IS/605

Contact Person: Wook-Sung Yoo   Phone: x5452

CURRENT COURSE DATA:

Course Title: Systems Analysis Techniques
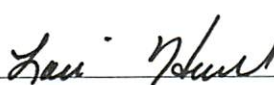
Alpha Designator/Number: | I | S | 6 | 0 | 5 | | | |

Title Abbreviation: | S | y | s | t | e | m | s | | A | n | a | l | y | s | i | s | | T | e | c | h | | | |

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1. Complete this **five** page form in its entirety and route through the departments/committees below for changes to a course involving: course title, alpha designator, course number, course content, credit hours, or catalog description.
2. If this change will affect other departments that require this course, please send a memo to the affected department and include it with this packet, as well as the response received from the affected department.
3. If the changes made to this course will make the course similar in title or content to another department's courses, please send a memo to the affected department and include it with this packet as well as the response received from the affected department.
4. List courses, if any, that will be deleted because of this change (*must submit course deletion form*).
5. If the faculty requirements and/or equipment need to be changed upon approval of this proposal, attach a written estimate of additional needs.

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head _____ Date Oct. 31, 18

Registrar _____ Date 11/8/18

College Curriculum Chair _____ Date _____

Graduate Council Chair _____ Date 1/26/19

Form updated 10/2011

College: CITE   Department/Division: Computer Science   Alpha Designator/Number: IS/605

Provide complete information regarding the course change for each topic listed below.

Change in CATALOG TITLE: ☒ YES   ☐ NO

From | S y s t e m s | A n a l y s i s | T e c h n i q u e s | (limited to 30 characters and spaces)

To | S y s t e m s | A n a l y s i s | a n d | D e s i g n |

If Yes, Rationale | This course will combine the contents of current IS 605 Systems Analysis Techniques and IS 610 Systems Design into one course (IS 605). The course title should be changed to "Systems Analysis and Design" to reflect the actual contents of the course.

Change in COURSE ALPHA DESIGNATOR:

From: ☐☐☐☐ To ☐☐☐☐   ☐ YES   ☒ NO

If Yes, Rationale

Change in COURSE NUMBER: ☐ YES   ☒ NO

From: ☐☐☐☐ To: ☐☐☐☐

If Yes, Rationale

Change in COURSE GRADING

From ☐ Grade To ☐ Credit/No Credit

Rationale

Change in CATALOG DESCRIPTION: ☒ YES   ☐ NO   IF YES, fill in below:

From | Introduction to information systems from system implementor's viewpoint; information systems life cycle; techniques of analysis; data dictionaries and data flow diagrams; computer-oriented system description.

To | This course focuses on analysis and design of information systems. Topics include system development approaches, UML design, system integration, service-oriented architecture and foundation.

If Yes Rationale | Combining contents of current IS 605 Systems Analysis and IS 610 Systems Design into one course since the contents of two current courses can be learned in one term (IS 605) so that IS 610 can cover more advanced topics.

Change in COURSE CREDIT HOURS: ☐ YES ☒ NO   If YES, fill in below:

NOTE: If credit hours increase/decrease, please provide documentation that specifies the adjusted work requirements.

From

To

Change in COURSE CONTENT: ☒ YES ☐ NO

From | Introduction to information systems from system implementor's viewpoint; information systems life cycle; techniques of analysis; data dictionaries and data flow diagrams; computer-oriented system description. (PR: Admission to program).

To | This course focuses on analysis and design of information systems. Topics include system development approaches, UML design, system integration, service-oriented architecture and foundation.

Rationale | Combining contents of current IS 605 Systems Analysis and IS 610 Systems Design into one course.

College: CITE   Department: Computer Science

Course Number/Title IS 605/Systems Analysis Techniques

1. REQUIRED COURSE: If this course is required by another department(s), identify it/them by name and attach the written notification you sent to them announcing to them the proposed change and any response received. Enter NOT APPLICABLE if not applicable.

N/A

2. COURSE DELETION: List any courses that will be deleted because of this change. A *Course Deletion* form is also required. Enter NOT APPLICABLE if not applicable.

N/A

3. ADDITIONAL RESOURCE REQUIREMENTS: If your department requires additional faculty, equipment, or specialized materials as a result of this change, attach an estimate of the time and cost etc. required to secure these items. (NOTE: approval of this form does not imply approval for additional resources. Enter NOT APPLICABLE if not applicable.

N/A

Please insert in the text box below your course change summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings) based on the appropriate change:

COURSE DESCRIPTION CHANGE
Department:
Course Number and Title:
Rationale:
Course Description (old)
Course Description: (new)
Catalog Description:

COURSE NUMBER CHANGE
Department:
Current Course Number/Title:
New Course Number:
Rationale:
Catalog Description:
Credit hours:

COURSE TITLE CHANGE
Department:
Current Course Number/Title:
New Course Title:
Rationale:
Catalog Description:

COURSE TITLE CHANGE
Department: Information Systems
Current Course Number/Title: IS605/Systems Analysis Techniques
New Course Title: Systems Analysis and Design
Rationale: This course will combine the contents of current IS 605 Systems Analysis Techniques and IS 610 Systems Design into one course (IS 605). The course title should be changed to "Systems Analysis and Design" to reflect the actual contents of the course.
Catalog Description: This course focuses on analysis and design of information systems. Topics include system development approaches, UML design, system integration, service-oriented architecture and foundation.

COURSE DESCRIPTION CHANGE
Department: Information Systems
Course Number and Title: IS605/Systems Analysis Techniques
Rationale: Combining contents of current IS 605 Systems Analysis and IS 610 Systems Design into one course since the contents of two current courses can be learned in one term (IS 605) so that IS 610 can cover more advanced topics.
Course Description (old)
Introduction to information systems from system implementor's viewpoint; information systems life cycle; techniques of analysis; data dictionaries and data flow diagrams; computer-oriented system description.
Course Description: (new)
This course focuses on analysis and design of information systems. Topics include system development approaches, UML design, system integration, service-oriented architecture and foundation.
Catalog Description:
This course focuses on analysis and design of information systems. Topics include system development approaches, UML design, system integration, service-oriented architecture and foundation.

Request for Graduate Course Change

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. **The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.**

College: CITE   Dept/Division:Computer Science   Current Alpha Designator/Number: IS/610

Contact Person: Wook-Sung Yoo   Phone: x5452

CURRENT COURSE DATA:

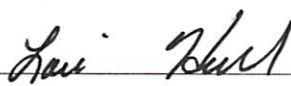Course Title: Systems Design

Alpha Designator/Number: | I | S | 6 | 1 | 0 | | | |

Title Abbreviation: | S | y | s | t | e | m | s | | D | e | s | i | g | n | | | | | | | | | |

1. Complete this **five** page form in its entirety and route through the departments/committees below for changes to a course involving: course title, alpha designator, course number, course content, credit hours, or catalog description.
2. If this change will affect other departments that require this course, please send a memo to the affected department and include it with this packet, as well as the response received from the affected department.
3. If the changes made to this course will make the course similar in title or content to another department's courses, please send a memo to the affected department and include it with this packet as well as the response received from the affected department.
4. List courses, if any, that will be deleted because of this change (*must submit course deletion form*).
5. If the faculty requirements and/or equipment need to be changed upon approval of this proposal, attach a written estimate of additional needs.

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head _Yoo, wook_	Date _Oct. 31, '18_
Registrar _Sonya HC_	Date _11/8/18_
College Curriculum Chair _Walo_	Date _11/8/18_
Graduate Council Chair _Lori Hurl_	Date _1/26/19_

Request for Graduate Course Change - Page 2

College: CITE   Department/Division: Computer Science   Alpha Designator/Number: IS/610

Provide complete information regarding the course change for each topic listed below.

Change in CATALOG TITLE: ☒ YES   ☐ NO

From | S | y | s | t | e | m | s | | D | e | s | i | g | n | | | | | | | | | | | | | | | | | (limited to 30 characters and spaces)

To | S | y | s | t | e | m | s | | Q | u | a | l | i | t | y | | A | s | s | u | r | a | n | c | e | | | | | |

If Yes, Rationale | Advanced topics related to the assuring quality in system design and implementation are covered as parts of IS 610.

Change in COURSE ALPHA DESIGNATOR:

From: [ ] To [ ]   ☐ YES   ☒ NO

If Yes, Rationale

Change in COURSE NUMBER: ☐ YES   ☒ NO

From: [ ] To: [ ]

If Yes, Rationale

Change in COURSE GRADING

From ☐ Grade To ☐ Credit/No Credit

Rationale

Change in CATALOG DESCRIPTION: ☒ YES   ☐ NO   IF YES, fill in below:

From | Physical design of information systems; hardware selection; software design, database considerations; program development; software structuring techniques; cost/ performance trade-offs; system implementation; evaluation and optimization techniques. (PR: IS 605)

To | This course will cover the steps in developing enterprise IT policies, standards, guidelines and procedures while ensuring quality and compliance responsible for the design, implementation, and evaluation, and monitoring of a comprehensive system.

If Yes Rationale | Advanced topics related to the assuring quality in system design and implementation are added to IS 610.

Request for Graduate Course Change

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. **The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.**

College: CITE   Dept/Division: Computer Science   Current Alpha Designator/Number: IS/610

Contact Person: Wook-Sung Yoo   Phone: x5452

CURRENT COURSE DATA:

Course Title: Systems Design

Alpha Designator/Number: | I | S | 6 | 1 | 0 | | | | |

Title Abbreviation: | S | y | s | t | e | m | s | | D | e | s | i | g | n | | | | | | | | | | |

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1. Complete this **five** page form in its entirety and route through the departments/committees below for changes to a course involving: course title, alpha designator, course number, course content, credit hours, or catalog description.
2. If this change will affect other departments that require this course, please send a memo to the affected department and include it with this packet, as well as the response received from the affected department.
3. If the changes made to this course will make the course similar in title or content to another department's courses, please send a memo to the affected department and include it with this packet as well as the response received from the affected department.
4. List courses, if any, that will be deleted because of this change (*must submit course deletion form*).
5. If the faculty requirements and/or equipment need to be changed upon approval of this proposal, attach a written estimate of additional needs.

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head _____	Date _____
Registrar _____	Date _____
College Curriculum Chair _____	Date _____
Graduate Council Chair _____	Date _____

College: CITE   Department/Division: Computer Science   Alpha Designator/Number: IS/610

Provide complete information regarding the course change for each topic listed below.

Change in CATALOG TITLE: ☒ YES   ☐ NO

From | S | y | s | t | e | m | s | | D | e | s | i | g | n | | | | | | | | | | | | | | | | | (limited to 30 characters and spaces)

To | S | y | s | t | e | m | s | | Q | u | a | l | i | t | y | | A | s | s | u | r | a | n | c | e | | | | | |

If Yes, Rationale | Advanced topics related to the assuring quality in system design and implementation are covered as parts of IS 610.

Change in COURSE ALPHA DESIGNATOR:

From: ☐☐☐☐ To ☐☐☐☐   ☐ YES   ☒ NO

If Yes, Rationale

Change in COURSE NUMBER: ☐ YES   ☒ NO

From: ☐☐☐☐ To: ☐☐☐☐

If Yes, Rationale

Change in COURSE GRADING

From ☐ Grade To ☐ Credit/No Credit

Rationale

Change in CATALOG DESCRIPTION: ☒ YES   ☐ NO   IF YES, fill in below:

From | Physical design of information systems; hardware selection; software design, database considerations; program development; software structuring techniques; cost/ performance trade-offs; system implementation; evaluation and optimization techniques. (PR: IS 605)

To | This course covers the steps of developing enterprise IT policies, standards, guidelines and procedures while ensuring quality and compliance in the design, implementation, evaluation, and monitoring of a comprehensive system.

If Yes Rationale | Advanced topics related to the assuring quality in system design and implementation are added to IS 610.

Change in COURSE CREDIT HOURS: ☐ YES ☒ NO   If YES, fill in below:

NOTE: If credit hours increase/decrease, please provide documentation that specifies the adjusted work requirements.

From

To

Change in COURSE CONTENT: ☒ YES ☐ NO

From
Physical design of information systems; hardware selection; software design, database considerations; program development; software structuring techniques; cost/ performance trade-offs; system implementation; evaluation and optimization techniques.

To
Topics in this course include more quality assurance:
- Collaborative Quality Assurance Techniques
- Quality, Issues and Ethics. Data Analytics.
- IT Policy Implications, liability for system and data quality, Ethical Implications
- Software Engineering as a profession: a Moral Case for licensure1, copyright law in the digital age.
- Managing Workplace Privacy Responsibly, virtual Harms
- Overview of IT Six Sigma and Lean techniques.

Rationale
Advanced topics related to the quality assurance in system design and implementation.

College: CITE

Department: Computer Science

Course Number/Title IS 605/Systems Analysis Techniques

1. REQUIRED COURSE: If this course is required by another department(s), identify it/them by name and attach the written notification you sent to them announcing to them the proposed change and any response received. Enter NOT APPLICABLE if not applicable.

N/A

2. COURSE DELETION: List any courses that will be deleted because of this change. A *Course Deletion* form is also required. Enter NOT APPLICABLE if not applicable.

N/A

3. ADDITIONAL RESOURCE REQUIREMENTS: If your department requires additional faculty, equipment, or specialized materials as a result of this change, attach an estimate of the time and cost etc. required to secure these items. (NOTE: approval of this form does not imply approval for additional resources. Enter NOT APPLICABLE if not applicable.

N/A

Please insert in the text box below your course change summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings) based on the appropriate change:

COURSE DESCRIPTION CHANGE
Department:
Course Number and Title:
Rationale:
Course Description (old)
Course Description: (new)
Catalog Description:

COURSE NUMBER CHANGE
Department:
Current Course Number/Title:
New Course Number:
Rationale:
Catalog Description:
Credit hours:

COURSE TITLE CHANGE
Department:
Current Course Number/Title:
New Course Title:
Rationale:
Catalog Description:

COURSE TITLE CHANGE
Department: Information Systems
Current Course Number/Title: IS610/Systems Design
New Course Title: Systems Quality Assurance
Rationale: Advanced topics related to the assuring quality in system design and implementation are added to IS 610.
Catalog Description: This course covers the steps of developing enterprise IT policies, standards, guidelines and procedures while ensuring quality and compliance in the design, implementation, evaluation, and monitoring of a comprehensive system.

COURSE DESCRIPTION CHANGE
Department: Information Systems
Course Number and Title: IS610/Systems Design
Rationale: Topics in this course include more quality assurance:
• Collaborative Quality Assurance Techniques
• Quality, Issues and Ethics. Data Analytics.
• IT Policy Implications, liability for system and data quality, Ethical Implications
• Software Engineering as a profession: a Moral Case for licensure1, copyright law in the digital age.
• Managing Workplace Privacy Responsibly, virtual Harms
• Overview of IT Six Sigma and Lean techniques.
Course Description (old)
Physical design of information systems; hardware selection; software design, database considerations; program development; software structuring techniques; cost/ performance trade-offs; system implementation; evaluation and optimization techniques.
Course Description: (new)
This course covers the steps of developing enterprise IT policies, standards, guidelines and procedures while ensuring quality and compliance in the design, implementation, evaluation, and monitoring of a comprehensive system.
Catalog Description:
This course covers the steps of developing enterprise IT policies, standards, guidelines and procedures while ensuring quality and compliance in the design, implementation, evaluation, and monitoring of a comprehensive system.

Request for Graduate Course Change

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. **The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.**

College: CITE   Dept/Division: Computer Science   Current Alpha Designator/Number: IS/622

Contact Person: Wook-Sung Yoo   Phone: x5452

CURRENT COURSE DATA:

Course Title: Information Structures II

Alpha Designator/Number: | I | S | 6 | 2 | 2 | | | |

Title Abbreviation: | I | n | f | o | r | m | a | t | i | o | n | | S | t | r | u | c | t | u | r | e | s | | 2 | |

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1. Complete this **five** page form in its entirety and route through the departments/committees below for changes to a course involving: course title, alpha designator, course number, course content, credit hours, or catalog description.
2. If this change will affect other departments that require this course, please send a memo to the affected department and include it with this packet, as well as the response received from the affected department.
3. If the changes made to this course will make the course similar in title or content to another department's courses, please send a memo to the affected department and include it with this packet as well as the response received from the affected department.
4. List courses, if any, that will be deleted because of this change (*must submit course deletion form*).
5. If the faculty requirements and/or equipment need to be changed upon approval of this proposal, attach a written estimate of additional needs.

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head _____ Date _Oct. 31, '18_

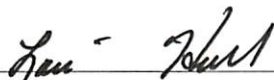Registrar _____ Date _11/8/18_

College Curriculum Chair _____ Date _11/16/18_

Graduate Council Chair _____ Date _1/26/19_

Form updated 10/2011   Page 1 of 5

College: CITE   Department/Division: Computer Science   Alpha Designator/Number: IS 605

Provide complete information regarding the course change for each topic listed below.

Change in CATALOG TITLE: ☒ YES   ☐ NO

From | I | n | f | o | r | m | a | t | i | o | n | | S | t | r | u | c | t | u | r | e | s | | 2 | (limited to 30 characters and spaces)

To | E | m | e | r | g | i | n | g | | T | e | c | h | n | o | l | o | g | i | e | s |

If Yes, Rationale: Technology changes rapidly. Innovative system and tools in information system will be studied in this course rather than covering more conventional concepts.

Change in COURSE ALPHA DESIGNATOR:

From: [ ][ ][ ][ ] To [ ][ ][ ][ ]   ☐ YES   ☒ NO

If Yes, Rationale

Change in COURSE NUMBER: ☐ YES   ☒ NO

From: [ ][ ][ ][ ] To: [ ][ ][ ][ ]

If Yes, Rationale

Change in COURSE GRADING

From ☐ Grade To ☐ Credit/No Credit

Rationale

Change in CATALOG DESCRIPTION: ☒ YES   ☐ NO   IF YES, fill in below:

From: A continuation of IS 621. Tree, graph, and set structures; file structures for secondary storage; aspects of discrete mathematics. (PR: IS 621)

To: This course will explore the emerging technologies that daily impact on our life. These technologies are generally new but include older technologies that are still controversial and relatively undeveloped in potential.

If Yes Rationale: Technology changes rapidly. Innovative system and tools in information system will be studied in this course rather than covering more conventional concepts.

College: CITE   Department/Division: Computer Science   Alpha Designator/Number: IS/605

Provide complete information regarding the course change for each topic listed below.

Change in CATALOG TITLE: ☒ YES   ☐ NO

From | I n f o r m a t i o n   S t r u c t u r e s   2 | (limited to 30 characters and spaces)

To | E m e r g i n g   T e c h .   i n   i n f o .   S y s . |

If Yes, Rationale | Technology changes rapidly. Innovative technology and tools in information systems will be studied in this course rather than covering more conventional concepts.

Change in COURSE ALPHA DESIGNATOR:

From: [   ] To: [   ]   ☐ YES   ☒ NO

If Yes, Rationale

Change in COURSE NUMBER: ☐ YES   ☒ NO

From: [   ] To: [   ]

If Yes, Rationale

Change in COURSE GRADING

From ☐ Grade To ☐ Credit/No Credit

Rationale

Change in CATALOG DESCRIPTION: ☒ YES   ☐ NO   IF YES, fill in below:

From | A continuation of IS 621. Tree, graph, and set structures; file structures for secondary storage; aspects of discrete mathematics. (PR: IS 621)

To | This course will explore the emerging technologies in information systems. These technologies are generally new but include older technologies that are still controversial and relatively undeveloped in potential. (PR: IS 621)

If Yes Rationale | Technology changes rapidly. Innovative technolgies and tools in information systems will be studied in this course rather than covering more conventional concepts.

Change in COURSE CREDIT HOURS: ☐ YES ☒ NO If YES, fill in below:

NOTE: If credit hours increase/decrease, please provide documentation that specifies the adjusted work requirements.

From

To

Change in COURSE CONTENT: ☒ YES ☐ NO

From | A continuation of IS 621. Tree, graph, and set structures; file structures for secondary storage; aspects of discrete mathematics. (PR: IS 621)

To | This course will explore the emerging technologies in information systems. These technologies are generally new but include older technologies that are still controversial and relatively undeveloped in potential.

Rationale | Technology changes rapidly. Innovative technologies and tools in information systems will be studied in this course rather than covering more conventional concepts.

College: CITE

Department: Computer Science

Course Number/Title IS 622/Information Structures 2

1. REQUIRED COURSE: If this course is required by another department(s), identify it/them by name and attach the written notification you sent to them announcing to them the proposed change and any response received. Enter NOT APPLICABLE if not applicable.

N/A

2. COURSE DELETION: List any courses that will be deleted because of this change. A *Course Deletion* form is also required. Enter NOT APPLICABLE if not applicable.

N/A

3. ADDITIONAL RESOURCE REQUIREMENTS: If your department requires additional faculty, equipment, or specialized materials as a result of this change, attach an estimate of the time and cost etc. required to secure these items. (NOTE: approval of this form does not imply approval for additional resources. Enter NOT APPLICABLE if not applicable.

N/A

Please insert in the text box below your course change summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings) based on the appropriate change:

COURSE DESCRIPTION CHANGE	COURSE NUMBER CHANGE	COURSE TITLE CHANGE
Department:	Department:	Department:
Course Number and Title:	Current Course Number/Title:	Current Course Number/Title:
Rationale:	New Course Number:	New Course Title:
Course Description (old)	Rationale:	Rationale:
Course Description: (new)	Catalog Description:	Catalog Description:
Catalog Description:	Credit hours:	

COURSE TITLE CHANGE
Department: Information Systems
Current Course Number/Title: IS622/Information Structures II
New Course Title: Emerging Technologies in Information Systems
Rationale: Technology changes rapidly. Innovative technolgies and tools in information systems will be studied in this course rather than covering more conventional concepts.
Catalog Description: This course will explore the emerging technologies in information systems. These technologies are generally new but include older technologies that are still controversial and relatively undeveloped in potential. (PR: IS 621)

COURSE DESCRIPTION CHANGE
Department: Information Systems
Course Number and Title: IS622/Information Structures II
Rationale: Technology changes rapidly. Innovative technology and tools in information systems will be studied in this course rather than covering more conventional concepts.
Course Description (old)
A continuation of IS 621. Tree, graph, and set structures; file structures for secondary storage; aspects of discrete mathematics. (PR: IS 621).
Course Description: (new)
This course will explore the emerging technologies in information systems. These technologies are generally new but include older technologies that are still controversial and relatively undeveloped in potential.
Catalog Description:
This course will explore the emerging technologies in information systems. These technologies are generally new but include older technologies that are still controversial and relatively undeveloped in potential. (PR: IS 621)

Marshall University

Course	IS 622 Information Structures II
Semester/Year	Fall 2018
Days/Time	W, 6:30-9:00 pm
Location	WAEC 1105
Instructor	Dr. Elias Majdalani
Office	
Phone	Division Secretary 304-696-4664
E-Mail	majdalan@marshall.edu
Office Hours	By appointment
University Policies	By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to www.marshall.edu/academic-affairs and clicking on "Marshall University Policies." Or, you can access the policies directly by going to www.marshall.edu/academic-affairs/policies/. Academic Dishonesty/ Excused Absence Policy for Undergraduates/Computing Services Acceptable Use/Inclement Weather/Dead Week/Students with Disabilities/ Academic Forgiveness/Academic Probation and Suspension/Academic Rights and Responsibilities of Students/Affirmative Action/Sexual Harassment

Course Description: From Catalog

A continuation of IS 621. This Course is designed to build on the previous data structure knowledge acquired and explore the practical side of data structure operation using the Microsoft visual framework, object oriented and ASP.net development tool. Key topics will include: WEB and Data structure programming with Visual studio ASP and VB.net.

Student learning outcome practiced and assessed in the course.

Course student learning outcomes	How students will practice each outcome in this course	How student achievement of each outcome will be assessed in this course
Students will...	Be able to understand The components and structure of the .NET Framework, Visual Studio and ASP.Net.	Assessment , project, test

Students will	Be able to understand object oriented structure, CSS, web page mapping and building web applications with ASP.NET	Assessment , project, test
Students will	Be able to authenticate web users access , control, linkage to database and form tools with Asp.net and VB.net	Assessment , project, test
Students will	Be able to understand the structure and configuration of database source and menu setting with ASP.net	Assessment, project, test

Required Texts, Additional Reading, and Other Materials

"Beginning ASP.net for Visual Studio 2015", by William Penberthy, ISBN : 978-1-119-07742-8

Course Requirements/Due Dates

Flash/Jump/USB drive needed for saving assignments and PowerPoint presentations.
Each student must have an Email and an account with Marshall.

Grading Policy

Evaluation is based on assignments/attendance, five exams, and an in-class, all-inclusive presentation. **All work is to be your own. Any evidence of cheating will be subject to the penalties for academic dishonesty listed in the MU catalog.** Grades will be reported on a **7 POINT** grading scale as follows:

Percentages

	A = 93 – 100
B = 86 – 92	
C = 78 – 85	
D = 70 – 77	
	F = Below 70

Assignments/Worksheets/Attendance 25%
Concepts/Quiz and test   35%
Projects   20%
Final Test   10%
Final Group project and presentation 10%

Attendance Policy

It is up to the student to ensure that he/she shows up on time and is prepared for class. Attendance is taken at the beginning of every class; any student NOT present during this time will be counted absent. There is ZERO tolerance for absences, tardiness, late work, excuses, and/or disrespect. Any student having FOUR unexcused absences will have his/her final grade lowered one letter grade. Any student having FIVE unexcused absences will have his/her final grade lowered two letter grades. Any student with MORE THAN five unexcused absences will fail the course for the semester. Excused absences are illnesses with a doctor's excuse to be presented the first day the student returns to class, death in the family (obituary presented), or institutional activities (those approved by the academic deans). Work missed with an excused absence must be made up within two class days of the return to class. Work missed due to an unexcused absence cannot be made up. MISSED EXAMS FOR AN UNEXCUSED ABSENCE WILL NOT BE MADE UP AND WILL RESULT IN A ZERO. If a student must be absent, it is his/her responsibility to do the work assigned and gets caught up before returning to class.

Be able to authenticate web users access , control, linkage to database and form tools with Asp.net and VB.net

It is the student's responsibility to know what work is assigned, do the work as directed, and save that assignment on his/her flash drive. Periodic checks will be made throughout the semester.

<u>**Academic Dishonesty**</u>:

Plagiarism and cheating are serious offenses and may be punished by failure on exam, paper, homework, or project; failure in course; and/or expulsion from MU

Tentative Course Schedule

Week 1	Introduction to class procedures, syllabus, and learning/general education outcomes; MU computer account, MU homepage, Email, Blackboard
Week 2-4	Microsoft .Net Framework, Visual Studio and ASP.Net Overview, ASPX Code and Assessment (assignment, quiz, test..)
Week 5	Project and testing
Week 6-8	Cascading Style Sheet CSS integration with HTML, validation, error handling and Data base connectivity and VB.Net integration.
Week 9	Project and testing
Week 10-13	Master page and Site Navigation with ASP.net routing, Database Tools and Form Controls. Security and Authentication. (Assessment...)
Week 14	Project and testing
Week 15	Final project Integration with menu designer
Week 16	Final testing and project

Dates to remember:

August 20, Monday First day of classes
September 3, Monday Labor Day Holiday- University Closed
October 10, Wednesday 1st 8 weeks courses end
October 11, Thursday 2nd 8 weeks courses begin
November 19, Monday – November 24, Saturday
Thanksgiving Break Classes dismissed
November 22, Thursday – November 23, Friday
Thanksgiving Holiday University closed
November 26, Monday Classes resume
December 3, Monday — December 7, Friday "Dead week"
December 7, Friday Last class day
December 10, Monday Exam day

Note: This syllabus is not to be considered a legal contract and may change at the Instructor's

Marshall University
Syllabus

Course	IS 622 Emerging Technologies in Information Systems
Semester/Year	Fall, 2019
Days/Time	TBD
Location	TBD
Instructor	TBD
Office	
Phone	TBD
E-Mail	TBD
Office Hours	TBD
University Policies	By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to www.marshall.edu/academic-affairs and clicking on "Marshall University Policies." Or, you can access the policies directly by going to www.marshall.edu/academic-affairs/policies/. Academic Dishonesty/ Excused Absence Policy for Undergraduates/Computing Services Acceptable Use/Inclement Weather/Dead Week/Students with Disabilities/Academic Forgiveness/Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/Affirmative Action/ Sexual Harassment

Course Description

This course will explore the emerging technologies in information systems. These technologies are generally new but include older technologies that are still controversial and relatively undeveloped in potential. (PR: IS 621)

Required Texts, Additional Reading, and Other Materials

"Computing and Information Technologies: exploring Emerging Technologies," by Antoniou George Print ISBN : 9789810247591 publisher :World scientific

Student learning outcome will be practiced and assessed in the course.

Course student learning outcomes	How students will practice each outcome in this course	How student achievement of each outcome will be assessed in this course

Students will...	Understand the Internet and Networking concepts of information systems development	assessments-exam questions,
Students will	Understand Human Computer interfacing and Parallel computing techniques.	assessments-exam questions
Students will	Will be introduced to Machine learning and imaging applications.	assessments-exam questions

Course Requirements/Due Dates

Flash/Jump/USB drive needed for saving assignments and PowerPoint presentations. **Each student must have an Email and an account with Marshall.**

Work Assignments may be submitted through Marshall University's Blackboard System. As a result, each student must have access to a computer and Internet connection.

A research paper will be required of all students. The following items will be used:

   a. Quizzes and test on assigned textbook material prior to each class.

   b. Research paper covering one of the applications discussed in class.

   c. Homework assignments based on class discussions.

Grading Policy

Evaluation is based on assignments/attendance, five exams, and an in-class, all-inclusive presentation. **All work is to be your own.** **Any evidence of cheating will be subject to the penalties for academic dishonesty listed in the MU catalog.** Grades will be reported on a **7 POINT** grading scale as follows:

Percentages

A	>= 90
B	>=80 & <9080_89
C	>=70 &<=7970– 79
D	>=60 & <6960- 69
F	<60 Below 60

assignments/Worksheets   30%
Concepts/Quiz30%
Case study Project report   30%
Participation and project presentation10%

Attendance Policy

It is up to the student to ensure that he/she shows up on time and is prepared for class. **Attendance is taken at the beginning of every class; any student NOT present during this time will be counted absent Any student having 3 unexcused absences will have his/her final grade lowered one letter grade.** Excused absences are illnesses with a doctor's excuse to be presented the first day the student returns to class, death in the family (obituary presented), or institutional activities (those approved by the academic deans). Work missed with an excused absence must be made up within **two class days** of the return to class. **Work missed due to an unexcused absence <u>cannot be made up</u>. <u>MISSED EXAMS FOR AN UNEXCUSED ABSENCE WILL NOT BE MADE UP.</u>** If a student must be absent, it is his/ her responsibility to do the work assigned and gets caught up before returning to class.

It is the student's responsibility to know what work is assigned, do the work as directed, and save

that assignment on his/her flash drive. When an assignment is due, it is the student's responsibility to submit the assignment. Periodic checks will be made throughout the semester.

Academic Dishonesty:

Plagiarism and cheating are serious offenses and may be punished by failure on exam, paper, homework, or project; failure in course; and/or expulsion from MU

Tentative Course Schedule

Week 1	Introduction to class procedures, syllabus, and learning/general education outcomes; MU computer account, MU homepage, Email, Blackboard and Connect
Week 2-3	Introducing Core advance IS techniques and tools
Week 4-5	Human Computing interface and robotics applications with case study
Week 6	Learning Algorithms and solving logical problems by equivalent transformation
Week 8-9	Communications Systems, Networking and Machine learning technologies.
Week 11-13	Introducing user centered design into a hybrid intelligent information system methodology towards hybrid knowledge and software engineering
Week 14	Overview of Imaging, Forensic and Prediction Applications
Week 15	IOT based technologies a comparative study
Week 16	Final project presentation

Note: This syllabus is not to be considered a legal contract and may change at the Instructor's discretion.

Request for Graduate Course Change

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. **The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.**

College: CITE   Dept/Division: Computer Science   Current Alpha Designator/Number: IS/698

Contact Person: Wook-Sung Yoo   Phone: x5452

CURRENT COURSE DATA:

Course Title: Internship

Alpha Designator/Number: | I | S | 6 | 9 | 8 | | | |

Title Abbreviation: | I | n | t | e | r | n | s | h | i | p | | | | | | | | | | | | | |

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1. Complete this **five** page form in its entirety and route through the departments/committees below for changes to a course involving: course title, alpha designator, course number, course content, credit hours, or catalog description.
2. If this change will affect other departments that require this course, please send a memo to the affected department and include it with this packet, as well as the response received from the affected department.
3. If the changes made to this course will make the course similar in title or content to another department's courses, please send a memo to the affected department and include it with this packet as well as the response received from the affected department.
4. List courses, if any, that will be deleted because of this change (*must submit course deletion form*).
5. If the faculty requirements and/or equipment need to be changed upon approval of this proposal, attach a written estimate of additional needs.

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

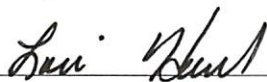Dept. Chair/Division Head _Yu, wook_   Date _Oct. 31, '18_

Registrar _Sonja HC_   Date _11/8/18_

College Curriculum Chair _Tiato_   Date _11/16/18_

Graduate Council Chair _Lori Howard_   Date _1/26/19_

College: CITE   Department/Division: Computer Science   Alpha Designator/Number: IS/605

Provide complete information regarding the course change for each topic listed below.

Change in CATALOG TITLE: ☐ YES   ☒ NO

From | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | (limited to 30 characters and spaces)

To | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

If Yes, Rationale

Change in COURSE ALPHA DESIGNATOR:

From: | | | | | To | | | | | ☐ YES   ☒ NO

If Yes, Rationale

Change in COURSE NUMBER: ☐ YES   ☒ NO

From: | | | | | To: | | | | |

If Yes, Rationale

Change in COURSE GRADING

From ☐ Grade To ☐ Credit/No Credit

Rationale

Change in CATALOG DESCRIPTION: ☐ YES   ☒ NO   IF YES, fill in below:

From

To

If Yes Rationale

Request for Graduate Course Change

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. **The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.**

College: CITE   Dept/Division: Computer Science   Current Alpha Designator/Number: IS/698

Contact Person: Wook-Sung Yoo   Phone: x5452

CURRENT COURSE DATA:

Course Title: Internship

Alpha Designator/Number: | I | S | 6 | 9 | 8 | | | | |

Title Abbreviation: | I | n | t | e | r | n | s | h | i | p | | | | | | | | | | | | | |

1. Complete this **five** page form in its entirety and route through the departments/committees below for changes to a course involving: course title, alpha designator, course number, course content, credit hours, or catalog description.
2. If this change will affect other departments that require this course, please send a memo to the affected department and include it with this packet, as well as the response received from the affected department.
3. If the changes made to this course will make the course similar in title or content to another department's courses, please send a memo to the affected department and include it with this packet as well as the response received from the affected department.
4. List courses, if any, that will be deleted because of this change (*must submit course deletion form*).
5. If the faculty requirements and/or equipment need to be changed upon approval of this proposal, attach a written estimate of additional needs.

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head _____   Date _____

Registrar _____   Date _____

College Curriculum Chair _____   Date _____

Graduate Council Chair _____   Date _____

Request for Graduate Course Change - Page 2

College: CITE   Department/Division: Computer Science   Alpha Designator/Number: IS/605

Provide complete information regarding the course change for each topic listed below.

Change in CATALOG TITLE: ☐ YES   ☒ NO

From [ ] (limited to 30 characters and spaces)

To [ ]

If Yes, Rationale

Change in COURSE ALPHA DESIGNATOR:

From: [ ][ ][ ][ ] To [ ][ ][ ][ ]   ☐ YES   ☒ NO

If Yes, Rationale

Change in COURSE NUMBER: ☐ YES   ☒ NO

From: [ ][ ][ ][ ] To: [ ][ ][ ][ ]

If Yes, Rationale

Change in COURSE GRADING

From ☐ Grade To ☐ Credit/No Credit

Rationale

Change in CATALOG DESCRIPTION: ☐ YES   ☒ NO   IF YES, fill in below:

From

To

If Yes Rationale

Change in COURSE CREDIT HOURS: ☒ YES ☐ NO   If YES, fill in below:

NOTE: If credit hours increase/decrease, please provide documentation that specifies the adjusted work requirements.

From | No credit for graduation (degree requirement)

To | Internship course (1 - 3 credits) counted for graduation.

Change in COURSE CONTENT: ☐ YES ☒ NO

From | Supervised work experience in information systems or related fields. No credit counted for graduation

To | Supervised work experience in information systems or related fields. Internship course (1 - 3 credits) counted for graduation.

Rationale | International students can apply for working permit (CPT) using credited internship course only (new immigration law) and this change will allow international students to have an off-campus internship experience.

College: CITE   Department: Computer Science

Course Number/Title IS698 Internship

1. REQUIRED COURSE: If this course is required by another department(s), identify it/them by name and attach the written notification you sent to them announcing to them the proposed change and any response received. Enter NOT APPLICABLE if not applicable.

N/A

2. COURSE DELETION: List any courses that will be deleted because of this change. A *Course Deletion* form is also required. Enter NOT APPLICABLE if not applicable.

N/A

3. ADDITIONAL RESOURCE REQUIREMENTS: If your department requires additional faculty, equipment, or specialized materials as a result of this change, attach an estimate of the time and cost etc. required to secure these items. (NOTE: approval of this form does not imply approval for additional resources. Enter NOT APPLICABLE if not applicable.

N/A

Please insert in the text box below your course change summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings) based on the appropriate change:

COURSE DESCRIPTION CHANGE
Department:
Course Number and Title:
Rationale:
Course Description (old)
Course Description: (new)
Catalog Description:

COURSE NUMBER CHANGE
Department:
Current Course Number/Title:
New Course Number:
Rationale:
Catalog Description:
Credit hours:

COURSE TITLE CHANGE
Department:
Current Course Number/Title:
New Course Title:
Rationale:
Catalog Description:

COURSE DESCRIPTION CHANGE
Department: Information Systems
Course Number and Title: IS698/Internship
Rationale: International students can apply for working permit (CPT) using credited internship course only (new immigration law) and this change will allow international students to have an off-campus internship experience.
Course Description (old)
Supervised work experience in information systems or related fields. No credit counted for graduation
Course Description: (new)
Supervised work experience in information systems or related fields. Internship course (1 - 3 credits) counted for graduation.
Catalog Description:
Supervised work experience in information systems or related fields. Internship course (1 - 3 credits) counted for graduation.

Request for Graduate Non-Curricular Changes

PLEASE USE THIS FORM FOR ALL NON-CURRICULAR CHANGE REQUESTS (changes in admission requirements or requirements for graduation, changes in existing or new policies/procedures, changes in program descriptions in catalog, general language changes in catalog).

SIGNATURES may not be required, depending on the nature of the request and from where it originates. Consult Graduate Council Chair.

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair.
3. **The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.**

College: **Pharmacy**   Dept/Division: **Pharm Sci / Practice**

Contact Person: **Eric Blough**   Phone: **x7394**

Rationale for Request:

We would like to respectfully request the addition of new material to the graduate catalog to better illustrate the structure of the PharmD / MPH dual degree program.

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.
NOTE: all requests may not require all signatures.

Department/Division Chair _~~Eric Blough~~_   Date _12/20/18_

Registrar _(signature)_   Date _12/20/18_

College Curriculum Committee Chair _(signature)_   Date _12/20/18_
(or Dean if no college curriculum committee)

Graduate Council Chair _(signature)_   Date _1/26/19_

NOTE: please complete information required on the following pages before obtaining signatures above.

1. **Current Catalog Description (if applicable):** Please insert the catalog description from the current catalog for entries you would like to change.

Dual Degree: Pharm.D. and M.P.H.

Students admitted to the School of Pharmacy may also seek admission to the Graduate College to pursue a Master of Public Health (M.P.H.) degree. Students selecting this option will be awarded the Pharm.D. and M.P.H. degrees at the same time. The application procedure and the student's enrollment status will vary depending on the students undergraduate degree. All students wishing to pursue the dual degree option must first consult with the Pharm.D. advisor regarding when they should apply for admission. Students who are admitted to the MPH program will be advised by a Pharm. D. advisor and an M.P.H. advisor. The advisors are responsible for ensuring students are making appropriate progress toward both degrees, enroll in the proper sequence of courses, and enroll in the proper section of the courses.

Pharm.D. Students Holding a Baccalaureate Degree: All students who have earned a baccalaureate degree from a regionally accredited college or university may apply for admission to the M.P.H. program. Students must meet the published admission criteria and complete the published degree requirements for the M.P.H. program.

Pharm. D. Students Who Do Not Have a Baccalaureate Degree: Students who have not earned a baccalaureate degree from a regionally accredited college or university may apply for admission to the M.P.H. program and pursue the degree under the following conditions. During their enrollment in the two degree programs, students who do not hold the baccalaureate will be continuously classified as Provisionally Admitted for the M.P.H. program. Students beginning the final semester of the Pharm.D. program of study will apply for graduation. Students in good academic standing in both programs and eligible to receive both degrees at the end of the term will be reclassified as Fully Admitted to the MPH program. Students who withdraw or are dismissed from the Pharm.D. program will also be withdrawn from the M.P.H. program regardless of level of degree completion or academic standing.

2. **Edits to current description**: Attach or insert a PDF copy of the current catalog description prepared in MS WORD with strikethroughs to mark proposed deletions and use the highlight function to indicate proposed new text.

Please see attached

Dual Degree: Pharm.D. and M.P.H.

Students admitted to the School of Pharmacy may also seek admission to the Graduate College to pursue a Master of Public Health (M.P.H.) degree. Students selecting this option will be awarded the Pharm.D. and M.P.H. degrees at the same time. The application procedure and the student's enrollment status will vary depending on the students undergraduate degree. All students wishing to pursue the dual degree option must first consult with the Pharm.D. advisor regarding when they should apply for admission. Students who are admitted to the MPH program will be advised by a Pharm. D. advisor and an M.P.H. advisor. The advisors are responsible for ensuring students are making appropriate progress toward both degrees, enroll in the proper sequence of courses, and enroll in the proper section of the courses.

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Successful completion of the following courses will result in receipt of both a Masters of Public Health (44 SCH degree*) and Doctor of pharmacy degrees (151 SCH degree). Please note that 6 credits hours from PharmD Program are dual counted towards MPH degree. Thus, students receive a 44 SCH MPH degree although they only take 38 credit hours in the MPH Program.

Global and Community Health Track in MPH program
Research, Evaluation & Policy Track in MPH program
* Students must choose one of the two tracks in the MPH program.

PROPOSED SCHEDULE FOR PHARM D/MPH students.
Curriculum for students with a minimum of 62 hours. NOTE: Through this pathway, students are admitted to the MPH program in their third year of the dual degree program.

Students are advised to take most of the core/foundational courses and all concentration specific courses during the third year of the program. Any remaining foundational MPH courses are taken during P3 and P4 years. Students will be able to maintain their Pharmacy Intern License while they are in the MPH program.

P-1 Year* (Year 1 of Program)
Required P1 Pharmacy Courses.

P-2 Year (Year 2 of Program)
Required P2 Pharmacy Courses

MPH Year (Year 3 of Program)
    A. Fall (12 credits)
          i.   PH 601 Intro to Public Health (1 credit)
          ii.   PH 655 Introduction to Health Care Policy (2 credits)
          iii.   PH 611 Epidemiology (3 credits)
          iv.   PH 621 Statistical Methods I (3 credits)
          v.   PH 671 Community Health (Global and Community Health Track) or PH615 Health Syst Research (Research, Evaluation & Policy Track) (3 credits)
          vi.   Cont. Longitudinal IPPE

    B. Spring (12 credits)
          i.   PH 641 Social and Behavioral aspects of Public Health (2 credits)
          ii.   PH 631 Environmental Health (2 credits)
          iii.   PH 651 Public Health Services (2 credits)
          iv.   PH 693 Public Health Law & Ethics (3 credits)
          v.   PH 662 Control of Infectious Disease (Global and Community Health Track) or PH656 Topics in Health Policy (Research, Evaluation & Policy Track) (3 credits)
          vi.   Cont. Longitudinal IPPE

    C. Summer (8 credits)
          i.   PH 672 Global Health (Global and Community Health Track) or PH 616 Clinical Trials (Research, Evaluation & Policy Track) (3 credits)
          ii.   PH 642 Health Communication (Global and Community Health Track) or PH 622 Statistical Methods (Research, Evaluation & Policy Track) (2 credits)
          iii.   PH 661 Chronic Disease (Global and Community Health Track) or PH 617 Methods in Applied Comparative Study (Research, Evaluation & Policy Track) (3 credits)

P-3 Year (Year 4 of Program)
Complete all P3 pharmacy courses, including electives.
The following MPH courses need to be taken during spring-
          i.   PH 694 Practicum (3 credits)

P-4 Year (Year 5 of Program)
A. Summer, Fall, Spring APPEs (APPE management elective required)
B. Pharmacy Capstone

The following MPH courses need to be taken during spring-
          i.   PH 696 Capstone (3 credits)

Note: 6 credit hours of coursework from the PharmD program can be used to replace the following MPH courses:

- PH 602 Public Health Biology (2 SCH) – (Biolog Prereq + PHAR 542 Immunology/Microb (4 SCH))
  Dual Credit received: 2 SCH
- PH 692 Seminar (1 SCH) – (PHAR 731 – Case Studies in Pharmacy Practice (3 SCH))
  Dual Credit received: 1 SCH
- PH 686 – Health Informatics & Technology (3 SCH) – PHAR622 (2 SCH) + PHAR 819 (1 SCH)
  Dual Credit received: 3 SCH

3. **New Catalog Description**: Provide a "clean" copy of your proposed description without strikethroughs or highlighting. This should be what you are proposing for the new description.

Please see attached

Dual Degree: Pharm.D. and M.P.H.

Students admitted to the School of Pharmacy may also seek admission to the Graduate College to pursue a Master of Public Health (M.P.H.) degree. Students selecting this option will be awarded the Pharm.D. and M.P.H. degrees at the same time. The application procedure and the student's enrollment status will vary depending on the students undergraduate degree. All students wishing to pursue the dual degree option must first consult with the Pharm.D. advisor regarding when they should apply for admission. Students who are admitted to the MPH program will be advised by a Pharm. D. advisor and an M.P.H. advisor. The advisors are responsible for ensuring students are making appropriate progress toward both degrees, enroll in the proper sequence of courses, and enroll in the proper section of the courses.

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* Students must choose one of the two tracks in the MPH program.

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Students are advised to take most of the core/foundational courses and all concentration specific courses during the third year of the program. Any remaining foundational MPH courses are taken during P3 and P4 years. Students will be able to maintain their Pharmacy Intern License while they are in the MPH program.

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P-2 Year (Year 2 of Program)
Required P2 Pharmacy Courses

MPH Year (Year 3 of Program)
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        iii.   PH 611 Epidemiology (3 credits)
        iv.   PH 621 Statistical Methods I (3 credits)
        v.   PH 671 Community Health (Global and Community Health Track) or PH615 Health Syst Research (Research, Evaluation & Policy Track) (3 credits)
        vi.   Cont. Longitudinal IPPE

    B. Spring (12 credits)
        i.   PH 641 Social and Behavioral aspects of Public Health (2 credits)
        ii.   PH 631 Environmental Health (2 credits)
        iii.   PH 651 Public Health Services (2 credits)
        iv.   PH 693 Public Health Law & Ethics (3 credits)
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        vi.   Cont. Longitudinal IPPE

    C. Summer (8 credits)
        i.   PH 672 Global Health (Global and Community Health Track) or PH 616 Clinical Trials (Research, Evaluation & Policy Track) (3 credits)
        ii.   PH 642 Health Communication (Global and Community Health Track) or PH 622 Statistical Methods (Research, Evaluation & Policy Track) (2 credits)
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P-3 Year (Year 4 of Program)
Complete all P3 pharmacy courses, including electives.
The following MPH courses need to be taken during spring-
        i.   PH 694 Practicum (3 credits)

P-4 Year (Year 5 of Program)
A. Summer, Fall, Spring APPEs (APPE management elective required)
B. Pharmacy Capstone

The following MPH courses need to be taken during spring-
        i.   PH 696 Capstone (3 credits)

Note: 6 credit hours of coursework from the PharmD program can be used to replace the following MPH courses:

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  Dual Credit received: 2 SCH
- PH 692 Seminar (1 SCH) – (PHAR 731 – Case Studies in Pharmacy Practice (3 SCH))
  Dual Credit received: 1 SCH
- PH 686 – Health Informatics & Technology (3 SCH) – PHAR622 (2 SCH) + PHAR 819 (1 SCH)
  Dual Credit received: 3 SCH

Please insert below your proposed change information for the Graduate Council agenda.

Type of change request: Non-curricular catalog change

Department: School of Pharmacy

Degree program: PharmD / MPH

Effective date (fall/spring/summer, year): Fall 2019

Request for Graduate Course Addition

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. **The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.**

College: College of Science   Dept/Division: Physics   Alpha Designator/Number: PHY 642   ⦿ Graded   ○ CR/NC

Contact Person: Huong Nguen   Phone: x6-2756

NEW COURSE DATA:

New Course Title: Advanced Quantum Mechanics

Alpha Designator/Number: | P | H | Y | | 6 | 4 | 2 | | |

Title Abbreviation: | A | d | v | a | n | c | e | d | Q | u | a | n | t | u | m | M | e | c | h | a | n | i | c | s | |

(Limit of 25 characters and spaces)

Course Catalog Description: (Limit of 30 words): This course covers advanced topics of quantum mechanics at the graduate level. Topics include fundamental issues, approximation methods and applications.

Co-requisite(s): PHY 630   First Term to be Offered: ~~Spring~~ 2019 *Fall*
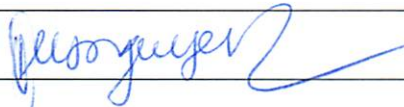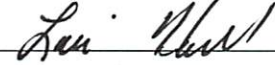
Prerequisite(s): PHY 630   Credit Hours: 4

Course(s) being deleted in place of this addition (*must submit course deletion form*): Not Applicable

COS DEAN'S OFFICE 2018 NOV -2 P 4: 23

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head _____   Date 11/1/2018

Registrar _____ 400801   Date 11/2/18

College Curriculum Chair _____   Date 11/29/18

Graduate Council Chair _____   Date 1/26/19

College: College of Science   Department/Division: Department of Physics   Alpha Designator/Number: PHY 642

Provide complete information regarding the new course addition for each topic listed below. Before routing this form, a complete syllabus also must be attached addressing the items listed on the first page of this form.

1. FACULTY: Identify by name the faculty in your department/division who may teach this course.

Huong Nguyen
Maria Babiuc Hamilton
Jon Saken
Sean McBride

2. DUPLICATION: If a question of possible duplication occurs, attach a copy of the correspondence sent to the appropriate department(s) describing the proposal. Enter "*Not Applicable*" if not applicable.

Not Applicable

3. REQUIRED COURSE: If this course will be required by another deparment(s), identify it/them by name. Enter "*Not Applicable*" if not applicable.

Not Applicable

4. AGREEMENTS: If there are any agreements required to provide clinical experiences, attach the details and the signed agreement. Enter "*Not Applicable*" if not applicable.

Not Applicable

5. ADDITIONAL RESOURCE REQUIREMENTS: If your department requires additional faculty, equipment, or specialized materials to teach this course, attach an estimate of the time and money required to secure these items. (Note: Approval of this form does not imply approval for additional resources.) Enter "*Not Applicable*" if not applicable.
Not Applicable

6. COURSE OBJECTIVES: (May be submitted as a separate document)

The primary objective of this course is to build the understanding of physical concepts and knowledge of mathematical methods of quantum mechanics. On this foundation the course will offer the study of more complicated systems and interactions. The secondary objective is to develop analytical skills for solving realistic quantum systems.

7. COURSE OUTLINE   (May be submitted as a separate document)

1. Mathematical Introduction
2. Review of Classical Mechanics
3. All is not Well with Classical Mechanics
4. The Postulates - a General Discussion
5. Simple Problems in One Dimension
6. The Classical Limit
7. The Harmonic Oscillator
8. The Heisenberg Uncertainty Relations
9. Systems with N Degrees of Freedom
10. Symmetries and their Consequences
11. Rotational Invariance and Angular Momentum
12. The Hydrogen Atom
13. Spin
14. Addition of Angular Momenta
15. The Variational and WKB Methods
16. Time-Independence Perturbation Theory
17. Time-Dependence Perturbation Theory
18. Scattering Theory
19. The Dirac Equation

8. SAMPLE TEXT(S) WITH AUTHOR(S) AND PUBLICATION DATES (May be submitted as a separate document)

Principles of Quantum Mechanics, by R. Shankar, 2nd Ed., Springer 2014

9. EXAMPLE OF INSTRUCTIONAL METHODS (Lecture, lab, internship)

Lecture 2 times a week, with examples and in-class problem solving.

10. EXAMPLE EVALUATION METHODS (CHAPTER, MIDTERM, FINAL, PROJECTS, ETC.)

4 quizzes, 2 Midterms, one project and a final

11. ADDITIONAL GRADUATE REQUIREMENTS IF LISTED AS AN UNDERGRADUATE/GRADUATE COURSE

Not Applicable

12. PROVIDE COMPLETE BIBLIOGRAPHY   (May be submitted as a separate document)

1. Shankar R., Principles of Quantum Mechanics, 2nd Ed., Springer 2014 ISBN 9780306447907
2. Sakurai J.J., Modern Quantum Mechanics, Addison-Wesley 1994, ISBN 9780201539295
3. Landau L.D., & Lifshitz, Quantum Mechanics, Butterworth-Heinerman, 3rd #d, 1981, ISBN 9780750635394
4. Claude Cohen-Tannoudji, Bernard Diu, Frank Laloe, 1st Ed, Wiley-VCH 1992 ISBN 9780471569527

Request for Graduate Course Addition - Page 5

Please insert in the text box below your course summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings):

Department:
Course Number and Title:
Catalog Description:
Prerequisites:
First Term Offered:
Credit Hours:

Department: Department of Physics
Course Number: PHY 642
Course Title: Advanced Quantum Mechanics
Catalog Description: This course covers advanced concepts of quantum mechanics at the graduate level. Topics include fundamental issues, approximation methods and applications.
Prerequisites/Corequisites: PHY 630
First Term Offered: Spring 2019
Credit Hours: 4

PHY 642 SYLLABUS

Course Title/Number	PHY 642: Advanced Quantum Mechanics
Semester/Year	Spring 2019
Days/Time	T &R, 4:00-5:50
Location	S281
Instructor	Que Huong Nguyen
Office	S 251
Phone	62756
E-Mail	nguyenh@marshall.edu
Office/Hours	1-3pm T&R
University Policies	By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy be going to www.marshall.edu/academic-affairs and clicking on "Marshall University Policies." Or, you can access the policies directly by going to http://www.marshall.edu/academic-affairs/?page_id=802
	Academic Dishonesty/ Excused Absence Policy for Undergraduates/ Computing Services Acceptable Use/ Inclement Weather/ Dead Week/ Students with Disabilities/ Academic Forgiveness/ Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/ Affirmative Action/ Sexual Harassment

Course Description: From Catalog

The course covers advanced concepts of quantum mechanics at the graduate level. Topics include fundamental issues, approximation methods and applications

Goals & Outcomes:

Course Student Learning Outcomes	How students will practice each outcome in this Course	How student achievement of each outcome will be assessed in this Course
Students will learn theoretical background of fundamental concepts	theory will be discussed in class, examples will be solved as classwork.	Students will be given quizzes on each part they learn.
Students will learn different approximation methods and problem solving techniques for each method.	Students will practice the techniques through classwork and homework. Homework will be assigned every week.	Two semester exams will be given to assess student knowledge.
Student will concentrate on physical application of each method.	Students will be introduced to problems different areas of physics in class. Students are expected to be attentive in class and	Final exam will be accumulative.

	participate in the classroom discussion.	
Students will apply the techniques and strategies to solve problems in realistic systems	Students will work on real physics problems Graduate students will work on a graduate project using these methods.	Evaluation of student work will be based on homework, quiz and exam performance, and also graduate project for graduate students.

Required Texts, Additional Reading, and Other Materials

1. Required Textbook: *Shankar R, Principle of Quantum Mechanics,2nd Ed, Springer 2014*
2. *Sakurai J.J. Modern Quantum Mechanics, Addison-Wesley 1994*
3. *Landau L.D. & Lifshitz, Quantum Mechanics, 3rd ed, 1994*
4. *Claude-Cohen-Tannoudji, Bernard Diu, Frank Laloe, Willey-VCH 1992*

Course Requirements / Due Dates

There will be 2 midterms and one final. Quizzes will be given every 3- week period
1. Exam 1: TBA
2. Exam 2: TBA
3. Project; Due a week before final
4. Final: TBA

Grading Policy

Homework:	10%
Quizzes	15%
Exam I	15%
Exam II	15 %
Project	20%
Final Exam	25%

Attendance Policy

Students are expected to attend all scheduled classes. Lectures and class discussions are vital for learning and understanding. Any absence from exams and quizzes can be excused only if the instructor is informed in advance with reasonable excuses. See University policy above.

Course Schedule

Shankar R, Principle of Quantum Mechanics, 2nd Ed, Springer 2014

- Mathematical Introduction
- Review of Classical Mechanics
- All Is Not Well with Classical Mechanics
- The Postulates—a General Discussion
- Simple Problems in One Dimension
- The Classical Limit
- The Harmonic Oscillator
- The Heisenberg Uncertainty Relations
- Systems with N Degrees of Freedom
- Symmetries and Their Consequences
- Rotational Invariance and Angular Momentum
- The Hydrogen Atom
- Spin
- Addition of Angular Momenta
- The Variational and WKB Methods
- Time-Independent Perturbation Theory
- Time-Dependent Perturbation Theory
- Scattering Theory
- The Dirac Equation