Graduate Intent to Plan

Master of Science in Mechanical Engineering (MSME)

Weisberg Division of Engineering

Marshall University

Proposed Implementation Date: Fall 2015

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Graduate Intent to Plan

Degree: Master of Science in Mechanical Engineering (MSME)

Major: Mechanical Engineering

Weisberg Division of Engineering

Brief Program Description:

This is an Intent to Plan for a Master's of Science in Mechanical Engineering Program (MSME) by the Weisberg Division of Engineering of the College of Information Technology and Engineering (CITE) to graduate mechanical engineers for meeting West Virginia's increasing technological demands. Graduates of this Program will contribute to West Virginia's economic development, advance its competitive edge globally and contribute to improvement in the quality of life.

A master's degree in mechanical engineering (MSME) provides additional breadth and depth of knowledge, positioning graduates for technical leadership and specialization in industry. Candidates develop skills such as analysis, resourcefulness, ingenuity, responsibility and perseverance through research activities. The proposed MSME will significantly increase graduate students enrollment at Marshall University from local, national and international sources. The INTO program recruiters in China and India have indicated that they can recruit large number of students to study MSME at Marshall University once the program is in place. The MSME will enable the introduction of an Accelerated Master's Degree (AMD or 4+1) program in BSME. AMD allows outstanding undergraduate students to complete a traditional four-year Bachelor's degree in Mechanical Engineering and then, with one additional year, earn a Master's degree. AMD will help attract more highly motivated undergraduate students to Marshall University. MSME degree program is essential to attract and retain qualified faculty members in ME. Also, research is an integral part of a faculty member's career to stay abreast in a rapidly evolving field such as ME. MSME program is critical to helping faculty members stay current and also contributes to keeping the BSME program current and relevant.

This proposed MSME program is to be established on the foundation of the currently under-review BSME program. Therefore, both programs are to share same resources. The program will cost approximately $1.8 million during its first five years, of which about $150,000 will be used to develop needed laboratories. The program is expected to generate $3.10 million in revenues during the first five years. Enrollment is expected to increase over this period; it is expected that, after the first five years, 28 students will have graduated with a MSME degree and approximately 46 students will be actively pursuing a MSME degree at MU.

Rationale for the New Degree Program

This is an Intent to Plan for a Master's of Science in Mechanical Engineering Program MSME by the Weisberg Division of Engineering of the College of Information Technology and Engineering (CITE) to prepare mechanical engineers for meeting West Virginia's increasing technological demands. Graduates of this Program will contribute to West Virginia's economic development, advance its competitive edge globally and contribute to improvement in the quality of life.

Mechanical Engineering is an engineering discipline that requires an understanding of mechanics, kinematics, thermodynamics and energy, and involves the application of principles of physics and mathematics to develop mechanical systems. The American Society of Mechanical Engineers (ASME) defines mechanical engineering as: the branch of engineering that serves society through the analysis, design, and manufacture of systems, at all size-scales, that convert a source of energy to useful mechanical work. In 2004, the ASME noted in its publication, "A Vision of the Future of Mechanical Engineering Education," that mechanical engineering education was "changing" in order to address "societal concerns." . The discipline is very broad, encompassing elements of these areas: energy science and technology, sustainability, propulsion, sensing and control, nanomaterials, nano- and micro-mechanics, design mechatronics, computational simulation, solid and fluid dynamics, manufacturing, micro-electromechanical systems (MEMS), and biomechanical engineering.

The U.S. Bureau of Labor projected a 5-8 percent increase in the national demand for mechanical engineers and closely related fields (manufacturing and materials) between 2012 and 2022. The demand for mechanical engineers with expertise in the design and development of mechanical systems for occupational safety and biomedical applications is projected to increase 13% nationally over the same period. The demand for engineers with expertise in the design of mechanical systems associated with alternative fuels and renewable energy is projected to increase 12% nationally in the next 10 years.

According to *U.S. News & World Report*, workers with master's degrees generally earn higher salaries than workers with less education (i.e bachelor). The Census Bureau data show us that typically mechanical engineers with master's degrees earn about $10,000-12,000 more a year (roughly, 15 percent) than those just having a bachelor's degree. Master's degree holders will generally start at a higher compensation level and progress faster in their careers. Data from ASME and ASCE for mechanical and civil engineers shows the increase above median annual income earned by a Bachelor's degree is 11-19 percent for a Master's. The U.S. Bureau of Labor Statistics (BLS) also noted that careers that require a master's degree to enter the field are projected to see the most job growth from 2012-2022. Advancement opportunities can include moving into managerial or administrative positions and obtaining licensure and certification.

A master's degree in mechanical engineering is often necessary to land certain jobs or for career advancement within certain disciplines of mechanical engineering. Many careers that require master's

degrees are typically found in sectors such as research and product development. Mechanical engineers with a master's degree often benefit from higher pay and increased job responsibilities. While the technical abilities are essential, employers value Master's holders for their organization, independence, problem solving, fast learning, commitment, flexibility, leadership and communication skills.

A master's degree in mechanical engineering provides additional breadth and depth of knowledge, positioning graduates for technical leadership and specialization in industry. Candidates develop skills such as analysis, resourcefulness, ingenuity, responsibility and perseverance through research activities. These skills make employees more successful and give them greater opportunity to work on more interesting projects. In the longer term, these skills are more important than the specialty, and the better skills of Master's degree holders will serve them well. U.S. data (across all areas of engineering) show that the unemployment rate for Bachelor's degree holders is 4.5% and for Master's degree holders it is 3.0%.

The economy of the future will be driven by innovation and knowledge. R&D to fuel innovation is largely conducted by graduate degree holders, yet USA in general and West Virginia in particular lags seriously in producing them. USA ranks 14th in the world for the fraction of its population graduating with a graduate degree (behind almost every other industrialized country a relatively smaller fraction is in engineering than is typical of peer nations. The need to take actions for maintaining technological leadership of the United States is progressively becoming more urgent. Developing cutting-edge technology through cultivating innovation is critically important in the global competitive environment. Engineering education is one of the most important aspects of this innovation-cultivating process. Many states are now recognizing a shortage of engineers and are taking actions to address this urgent problem.

Enrollment of engineering in Master's degrees grew to about 113,000 in 2013, representing a 6 percent above the previous year. In the 2012-13 academic year, there were 23554 students enrolled in MSME programs and related fields nationwide (Engineering Enrollment 2012-13, www.asee.org/college) at a rate of 71 per million capita. The total enrollment in state supported MSME programs in West Virginia was estimated to be 85 students in Fall 2013 at a rate of 44 per million capita—27 per million lower than the national average.

Given the above backdrop and especially the opportunities unfolded by renewable energy, bio and hydro-carbon fuels, sustainability, nanomaterials and biotechnology, introducing MSME degree at Marshall University is of strategic importance for the following reasons:

- There is only one Mechanical Engineering Master's Degree program in the state of West Virginia], which is located at the West Virginia University. Given the high demand for Mechanical Engineering (ME) graduate education and excellent job opportunities, there is a need for an additional master's programs to serve the southern West Virginia and Tri-State region population.
- Marshall University Bachelor of Science in General Engineering (BSE) recent graduates have

gone to other institutions such as the Ohio State University, University of Michigan, Purdue University, and others to pursue graduate studies in engineering. Once West Virginia students leave the state to pursue graduate engineering degrees elsewhere, they are less likely to come back to the state after graduation. MU MSME program will help to keep more of West Virginia ME students in the state.

- Given the rapid advances in the mechanical engineering (ME) discipline, MSME degree program is essential for providing BSME students an educational experience that reflects current advances and practices in the field. MSME program provides a research-oriented academic environment that helps to attract more students into the BSME program. BSME and MSME programs complement each other and they are like *Yin and Yang* as attested by their co-existence in almost all broad-based universities in the US.
- MSME will enable the introduction of an Accelerated Master's Degree (AMD or 4+1) program in BSME. AMD allows outstanding undergraduate students to complete a traditional four-year Bachelor's degree in Mechanical Engineering and then, with one additional year, earn a Master's degree. AMD will help attract more highly motivated undergraduate students to Marshall University.
- MSME degree will significantly increase graduate student enrollment at Marshall University through both direct and INTO program channels. The INTO program recruiters in China and India have indicated that they can recruit large number of students to study MSME at Marshall University once the program is in place. This is not surprising given the current and future ME job growth rates in the US and globally.
- MSME degree program is essential to attract and retain qualified faculty members in ME. Also, research is an integral part of a faculty member's career to stay abreast in a rapidly evolving field such as ME. MSME program is critical to helping faculty members stay current and also contributes to keeping the BSME program current and relevant.
- Even at the current research activity level at Marshall University, MSME graduate students will be able to help advance collaborative research opportunities for MU faculty by effectively utilizing advanced computational and analytical research tools. Especially faculty of School of Medicine and bio-medical fields. MSME program will contribute to interdisciplinary research at Marshall University.
- With shrinking state financial support to Marshall University, it is critical that academic departments acquire advanced and specialized laboratory instruments to support instruction through external funding. MSME degree program will help in making proposals more competitive.

New Catalog Description

Program Description

The Master of Science in Mechanical Engineering (MSME) degree is designed to provide students with the knowledge, skill, and professional practices needed to develop and design mechanical engineering

related systems. The program also prepares students who desire to pursue further graduate work leading to a Ph.D. degree.

Admission Requirements

Applicants should follow the admissions process described in this catalog or at the Graduate Admissions website: http://www.marshall.edu/graduate/admissionsrequirements.asp. Each applicant for admission to the M.S. in Engineering degree program must have an undergraduate engineering degree from either an accredited ABET curriculum or an internationally recognized program and meet *one* of the following (A, B, or C) admission requirement options:

A. Pass the PE exam, or

B. Have an undergraduate cumulative GPA of 3.00 or greater, or

C. Have an undergraduate cumulative GPA of 2.50 or greater, and satisfy at least two of the following:
   (1) Pass the FE exam,
   (2) verbal GRE score at least 145,
   (3) quantitative GRE score at least 150, and/or
   (4) analytical writing GRE score at least 3.0.

Additionally, to be considered for admission, international students must have an iBT TOEFL score of at least 85, or a Paper-Based TOEFL score of at least 527. Students who do not meet admission requirement options A, B, or C are welcome to apply, and their applications will be considered for admission on a case by case basis. The program admission recommendation will be decided by the MSME degree program coordinator based on a combination of GRE scores and level of performance in undergraduate engineering coursework.

Applicants who do not meet the above criteria but have an undergraduate engineering degree are welcome to apply as non-degree seeking students and take classes toward their MSME degree. If the student has a minimum cumulative graduate GPA of 3.30 in his or her first 9 credit hours of CITE MSME courses, that student may re-apply to the university to be considered for admission to the MSME degree program.

Eligibility to take the PE exam is based primarily on completion of an ABET accredited undergraduate engineering degree in most states. Completion of a MSME graduate degree at an institution with an ABET-accredited undergraduate degree does not fulfill that requirement to take the PE exam.

Degree Requirements

Each degree candidate is required to complete at least 30-33 graduate credit hours, depending on the "option" chosen below (project, thesis, or coursework only), with a cumulative Grade Point Average of

3.0 for the courses included in the student's Plan of Study. At least one-half of the minimum required hours for the degree must be earned in classes numbered 600 or above.

Each degree-seeking student must file an approved "Plan of Study," developed with a faculty advisor, before the student registers for the 12th credit hour. The Academic Regulations portion of the Graduate Catalog may be consulted for additional information.

Students may choose to complete either the "project option," the "thesis option," or the "coursework only option" after consultation with their academic advisor.

The MSME degree requires 30 credit hours (CR) of graduate work for thesis and design project options, and 33 CR for coursework- only option. Design project option students must complete a Design Project as one of their Graduate Electives. At least 18 CR must come from 600-level courses. The 30 or 33 CR is comprised of the following components:

Core Courses: All graduate students in the MS program are required to complete four required core courses: ME601- Mathematics for Engineers I, ME 602- Mathematics for Engineers II (or ENGR 610- Applied Statistics approved by the advisor and department head), ME 570- Finite Elements and ME 603- Research Methods (or a 600-level course approved by the advisor and department head for coursework option).

Focus Courses: All graduate students in the MS program must develop a graduate focus area of study, with prior approval from their adviser and the department head. The focus area should consist of at least 9 credits of graduate study in mechanical engineering (ME600 or higher) and be related to the student's technical and professional development interests. Examples of focus areas include sustainability, materials and manufacturing, bio-mechanical engineering, thermo/fluids, and mechanics/design.

Elective Courses: All graduate students in the MS program must complete a minimum of 3 credits of elective courses. The elective courses must be approved by the advisor.

Thesis Option: ME Thesis (6 CR), Prior to completing 24 semester credit hours of graduate work, students should prepare and present a formal thesis proposal to their faculty adviser. An acceptable proposal (including a statement of work, extensive literature search, and proposed timeline), signed by the student and approved by their faculty adviser and department head, is required prior to registering for thesis credits. Students must form a graduate thesis committee in coordination with their adviser and present their proposal to their committee for review and approval during the first semester in which they have registered for thesis credit. Students are required to deliver a successful written and oral presentation of their thesis

Core Courses

1. ME 601- Mathematics for Engineers I
2. ME 602- Mathematics for Engineers II

3. ME 570- Finite Elements
4. ME 603- Research Methods

500-level Elective Courses

Any of the following courses may be used as 500-level electives:

1. ME 510- Dynamics of Compressible Fluids
2. ME 515- Vehicle Dynamics
3. ME 520- Introduction to Computational Fluid Dynamics
4. ME 530- Renewable Energy
5. ME 550- Nano-Materials
6. ME 560 -Automation and Controls
7. ME 570 -Sustainable Energy Systems
8. ME 580-583 -Special Topics

600-level Elective Courses

Any of the following courses may be used as 600-level electives:

1. ME 615 -Additive Manufacturing
2. ME 620 -Corrosion Engineering
3. ME 625- Tribology
4. ME 627- Bio-fluid Mechanics
5. ME 628- Applied Biomaterials
6. ME 629- Biomechanics
7. ME 630- Manufacturing Systems
8. ME 631- Applied Bio-Transport
9. ME 635- Adv. Vibrations
10. ME 640- Systems Modeling
11. ME 645- Nonlinear Dynamics
12. ME 650-653- Special Topics
13. ME 654 -Sustainable Energy Management
14. ME 655- Fundamentals of Sustainable Engineering
15. ME 660- Alternative Fuels and Energy Efficiency
16. ME 665- Convection Heat Transfer
17. ME 670- Fuel Cells
18. ME 681-Engineering Research
19. ME 685-688 - Independent Study
20. ME 699-Design Project

Additional Resource Requirements

The proposed MSME program is to be established on the foundation of the currently under-review BSME program (**The BSME Intent to Plan is attached in Appendix C**). Therefore, both program are to share same resources. However, the MSME degree program will require some additional resources due to the nature and scope of the proposed program. These additional resources fall into four primary categories: physical infrastructure, research support, student support, and faculty.

Physical Infrastructure

The Weisberg Division of Engineering will be housed in the Arthur Weisberg Family Applied Engineering Complex, a new building which is under construction (expected occupancy: Spring/Summer, 2015). Adequate space for faculty offices, classrooms, and computer labs has been provisioned in the new building for the current and near-term Engineering division needs.

Though the MSME program primarily targets INTO program students and local/regional full-time students, some MSME courses will be offered in the evenings to accommodate working professionals. The schedule for evening courses will be rotated in such a way to enable working professionals to earn a MSME degree. These courses will also help reduce contention for classrooms during peak hours. Therefore, no additional physical infrastructure is needed.

Research & Students Support

The Division has five laboratories that are associated with the existing engineering program. Most of these facilities can be utilized as associated mechanical engineering laboratories with the proper equipment complement. The needed labs for the BSME will require approximately 20,000 sq. ft. of additional teaching laboratory space as well as additional appropriate support staff. All needed space will be accommodated in the Weisberg Family Applied Engineering Complex and Weisberg Engineering Lab.

More specialized and research grade equipment will be needed to have state-of-the-art laboratories to support the research initiatives. Local industries and the community are expected to raise $600,000-1000,000 for equipment, scholarships, and other start-up costs for the new mechanical engineering program.

The total projected, therefore, for the research labs is $150,000. About $45,000 of his required funds will be in form of start-up support for the new faculty (new faculty usually gets about $30,000 as start-up fund).

During the infancy phase, the MSME program requires for financial support in terms of graduate assistantships to attract over-achieving students. These assistantships should come in form of tuition benefits and stipends (20 hours/ Week). Therefore, it is anticipated that the program will be awarded a total of three full graduate assistantships per year for the first three years of the program. The estimated cost of such support is about $29,000 per year.

Faculty Resources and Teaching Load mapping

As it was mentioned earlier, this proposed MSME program is to be established on the foundation of the currently under-review BSME program. Therefore, no additional faculty will be needed to support this program. The following table shows a typical faculty course load when the program is fully staffed and implanted.

The listed tables to provide information about Core and Support faculty. An asterisk (*) indicates the individual who will have direct administrative responsibilities for the program.

Name of Core Faculty and Faculty Rank	Highest Degree	Courses Assigned in Program	% Time Assigned To Program
Salem, Asad * Professor [Primary responsibility for administering the program]	PhD in Mechanical Engineering (Energy & Thermal Science)	ME- 570, 654, 655, 660, 665, 670, 699& 681	25%
Chen, Gang Associate Professor	PhD in Mechanical Engineering (Dynamical Systems)	ME- 515, 603, 640, 645,699 & 681	25%
Hijazi, Iyad Assistant Professor	PhD in Mechanical Engineering (Materials)	ME -550, 601 620, 625,699 &681	25%
Sadique, Serdar Assistant Professor	PhD in Mechanical Engineering (Manufacturing)	ME- 601, 602, 615, 630, 699 &681	25%
New Faculty (I) in Year 2016	PhD in Mechanical Engineering (Design)	ME -570, 601, 602, 603, 699 &681	25%
New Faculty (II) in Year 2016	PhD in Mechanical Engineering (Thermo-Fluids)	ME- 510, 520, 530, 570, 654, 665, 699 & 681	25%
New Faculty (III) in Year 2016	PhD in Mechanical Engineering (Controls)	ME -570, 601, 602, 603, 640, 699 &681	25%

Annual Course Schedule to Meet MSME Requirements

	Fall	Spring
Year I	ME-601* ME-603 ME-699** ME-681** Three Elective Courses	ME-570 ME-602* ME-699** ME-681** Three Elective Courses
Year II	ME-601* ME-603 ME-699** ME-681** Three Elective Courses	ME-570 ME-602* ME-699** ME-681** Three Elective Courses
*ME-601 & ME-602 are Pre-Requisites ** ME-699 (Design Project) & ME-681 (Thesis) will be offered based on students and faculty interests.		

The BSME/MSME Projected Faculty Course Load in 2016-2017

	Fall 2016					Spring 2017				
Faculty	ENGR	BSME	MSME	Total SCH	Total Cont. Hrs	ENGR	BSME	MSME	Total SCH	Total Cont. Hrs
Chen	3	3	3	9	9	0	5	3	8	9
Hijazi	3	3	3	9	9	4	3	0	7	9
Sadique	6	3	0	9	9	0	6	3	9	11
Salem	1	3	3	7	9	0	3	3	6	6
Mechatronics*	7	0	0	7	8	3	3	3	9	10
TOTAL (BSME/MSME)	20	12	9	41	44	7	20	12	39	45
*New faculty as a replacement to Dr. Bill Pierson in the area of Mechatronics- Active faculty search										

From the above listed table, it is noticed that during a typical academic year the average teaching load for a designated BSME faculty is 13.0 SCH of undergraduate related courses/ year (15.2 Contact Hours) and 5.0 SCH of graduate related course/ year to a total of 18.0 SCH/ year. Therefore, the faculty will have 25% time release to pursue their research interests

Five-Year Enrollment Projection

Assuming Fall, 2015 start date, the listed Table shows projected MSME program enrollment growth during the first five years. This is a very conservative estimate. Furthermore, by design, enrollment will be capped at the levels shown in the table so that the program can be offered without additional faculty resources.

Under a typical scenario, it will take four semesters to fulfill the MSME degree requirements. Students will complete 9 hours of course work during each of the first two semesters, 6 hours of course work and initial thesis work during the third semester, and dedicate the fourth semester to completing thesis research. Another scenario is 9 hours of course work during each of the first three semesters, and completion of comprehensive project during the fourth semester.

In steady state, the program requires offering 9 courses per academic year and maximum enrollment per section will be capped at 20. The lab fee generated through the courses will be used to fund graduate teaching assistants who will help the professors in grading assignments and exams.

If the US Bureau of Labor Statistics projections were to hold true, the program can easily grow to a level where 15-20 students graduate every year. Offering 9 graduate courses per academic year

requires 1.5 FTE faculty. The goal is to kick-start the program with only minimal additional faculty resources and providing the university administration the option to grow the program with additional faculty resources.

MSME Program Five-Year Enrollment Projection

	New Students	Attrition	Graduation	Cumulative Head Count	Cumulative FTE
1st year 2015-16	10	0	0	10	10
2nd Year 2016-17	18	2	0	26	26
3rd Year 2017-18	20	3	8	33	33
4th Year 2018-19	25	3	15	40	40
5th Year 2019-20	25	4	15	46	46

Expenses and Revenue Projection

III. Costs and Funding

Five-Year Costs and Funding Sources – The summary in the table below has a parallel set of detailed tables shown in Appendix D.

No additional faculty will be needed to support this program. As it was mentioned earlier, this proposed MSME program as well as the currently under-review BSME program will share faculty and resources and students as well (in case of the accelerated BSME/MSME program). It is neither practical nor possible to accurately assess the financial impact of the MSME program in the absence of the BSME program. Therefore, a pro-forma model analysis was done for both programs. It was assumed that MSME anticipated cost and revenues are 25% of the total cost and revenues of combined programs.

Five-Year Costs		Five-Year Funding	
Personnel[1]	$1, 307,000	Reallocated Funds[2]	$658,000
Equipment	$150,000	Anticipated State Funding	$0.0
Program Start-up/ Development	$169,000	Special Item Funding (Industry Support) Research	$150,000 $150,000

Annual Operating Expenses	$199,000	Tuitions &Fees	$2,149,000
Total Costs	**$1,825,000**	**Total Funding**	**$3,107,000**

1. Includes costs for new faculty hires, adjuncts, reallocated faculty time, program administration, and clerical and technical support personnel. For new faculty and reallocated faculty, individual salaries are prorated as a percentage of the time assigned to the program.
2. Reallocated funds are from faculty and staff salaries that will be assigned to the program.

Appendix A

Course Descriptions

ME 430/531 Design of Thermal Systems

Analysis, management and cost, team work, optimal design, and computer simulation of thermal systems and components; Applications in fluid flow and heat transfer, pumps, turbines and heat exchangers. Selected course topics are included as computer programming projects. (Prerequisite: ME 350) CR (3,0,3)

ME 435/536 Design of Mechanical Systems

This is an applied course in the selection of components and integration of those components into electro-pneumatic-mechanical devices and systems. Topics involve all aspects of machine design, including drive components and systems, motion generation and control, and electrical control hardware and strategy. CR (3,0,0)

ME 510 Dynamics of Compressible Fluids: The objective of this course is to study the basic equations of compressible flow, isentropic relationships, and normal and oblique shock waves; Prandtl-Meyer expansion, Fanno Line; applications to nozzles, diffusers. (Pre-requisite ENGR 319) CR (3,0,3)

ME 515 Vehicle Dynamics

Deals with the fundamentals of ground vehicle stability and control. The contribution of tire lateral force, stiffness, and aligning torque to vehicle stability is discussed. Bicycle and four-wheel vehicle models are analyzed for neutral, under and over-steering characteristics. The effects of suspension geometry, chassis stiffness and roll stiffness on stability and handling are analyzed. CR (3,0,3)

ME 520 Introduction Computational Fluid Dynamics

This course covers basic numerical techniques applicable to equations in fluid mechanics and heat transfer. Numerical methods required for programming partial differential equations are introduced. Course work involves analytical programming and design examples. This course introduces the students to some of the commercial CFD codes being used for solving thermal-fluid problems. Students complete an individual CFD study project including a written report and a presentation of the results. Pre-requisite: ENGR 318) CR(3,0,3)

ME 530 Renewable Energy

This course provides an overview of renewable energy system design. Energy resource assessment, system components, and feasibility analysis will be covered. Possible topics to be covered include photovoltaics, wind turbines, solar thermal, and hydropower. Students will be responsible for a final design project. (Pre-requisite: ME 310) CR(3,0,0)

ME 550 Nano-Materials

Introduction to the fundamentals of nanomaterial and nanotechnology. Unique mechanical, chemical, electrical, optical and magnetic properties of nanomaterials as a result of reduction in dimensionality. Synthesis methods of various nanomaterials. Nano and microfabrication techniques. Applications of

nanomaterials in catalysis, electronics, optoelectronics, composite technology, environmental science, biotechnology and biomed. (Pre-requisite: ENGR 215) CR (3,0,3)

ME 560 Automation and Robotics

An applied course in the fundamentals and applications of industrial robots. Emphasis is placed on the use of microcontrollers to construct mobile robots. Topics include microcontroller programming, industrial robot fundamentals, DC servo and stepper motors, encoders, sensors, programming, gripper design, and safety. A major emphasis is placed in a design project involving the design, build, and test of a mobile robot for an application. (Pre-Requisite ME 420) CR(3,0,3)

ME 570 Finite Elements

This course emphasizes the application of the finite element method to problems in the area of static and dynamic structural analysis, heat transfer, and analogous solution. A standard commercial software package is used for these applications where the general structure, operating characteristics and use of a complex program are presented. Topics include the finite element method; shape factors, element formulation, and the element library;

program sequencing; general modeling methods (loads, constraints, material factors, mesh generation, interactive graphics, model conditioning); convergence, error analysis and the "patch" test, vibration and heat transfer analysis, and analogous analysis such as acoustics, illumination, etc. CR(3,0,3)

ME 570 Sustainable Energy Systems

This course provides an overview of mechanical and associated control systems within buildings with an emphasis on sub-systems which possess the most visible energy signature in terms of energy usage, energy inefficiency, and societal and global impact. Fundamentals of system operation are explored as well as energy management techniques. Using domestic and international case studies which highlight energy management within the built environment, students will explore methods by which engineers have achieved solutions aligned with sustainability. (Pre-requisite: ME 310) CR (3,0,3)

ME 601 Math for Engineers I

Analytical techniques for solving ordinary and partial differential equations frequently occurring in advanced mechanical engineering. This course trains students to utilize mathematical techniques from an engineering perspective, and provides essential background for success in graduate level studies. An intensive review of linear and nonlinear ordinary differential equations and Laplace transforms is provided. Laplace transform methods are extended to boundary-value problems and applications to control theory are discussed. Problem solving efficiency is stressed, and to this end, the utility of various available techniques are contrasted. The frequency response of ordinary differential equations is discussed extensively. Applications of linear algebra are examined, including the use of eigenvalue analysis in the solution of linear systems and in multivariate optimization. An introduction to Fourier analysis is also provided.

ME 602 Math for Engineers II

Numerical analysis of ordinary and partial differential equations and other advanced topics as applied to mechanical engineering problems. This is a course in partial differential equations focused primarily on separation of variable techniques, and teaches the necessary vector space theory so that the problem solving methodology may be understood completely. Algebraic vector space concepts, such as the basis,

are extended to functions, and operator theory is introduced as a means of unifying the solution structure of linear algebraic and differential equation systems. Existence and uniqueness is examined by considering the null and range spaces of algebraic and differential operators, the adjoint operator, and Fredholm's Alternative. Eigenvalue analysis is extended to functions, including an examination of Sturm-Liouville theory. Solutions of Laplace's equation, the heat equation, the wave equation, and the biharmonic equation are examined in a variety of geometries.

ME 603 Research Methods

This course introduces students to research methods in mechanical engineering. A primary focus of the course is on conducting critical reviews of research literature, preparing a formal thesis proposal, and initiating background research on a thesis topic. At the conclusion of the course, the students are expected to submit a formal thesis proposal, literature review, and plan of study for the completion of the MSME degree offered through the department.

ME 615 Additive Manufacturing

The course, Additive Manufacturing Systems, deals with various aspects of additive, subtractive, and joining processes to form three-dimensional parts with applications ranging from prototyping to production. Additive manufacturing (AM) technologies fabricate three-dimensional (3D) parts using layer-based manufacturing processes directly from computer-aided-design (CAD) models. Direct digital manufacturing (DDM) or rapid manufacturing (RM) is the use of AM technologies in direct manufacturing of end-use parts. In this course, you will learn about a variety of AM and other manufacturing technologies, their advantages and disadvantages for producing both prototypes and functional production quality parts, and some of the important research challenges associated with using these technologies.

ME 620 Corrosion Engineering

Rate-controlling steps in electrode processes; activation, ohmic, and concentration polarization; passivation; potentiostatic studies and alloy design; applications to engineering systems.

ME 625 Tribology

Generalized Reynolds equation; thermal, turbulent, inertia, fluid compressibility, and surface roughness effects on sliding bearings; fatigue, scuffing, and wear in elasto-hydriodynamic contact; plasto-hydrodynamic lubrication in metal rolling, extrusion, and forging. This course provides an overview of the role of fluid-film lubrication in mechanical design, with strong emphasis on applications. Various forms of the Reynolds equation governing the behavior of lubricant films for planar, cylindrical, and spherical geometry are derived. Mobility and impedance concepts as solution methods of the Reynolds equation are introduced for the performance assessment of lubricated journal bearings under static and dynamic loading. Short, long, and finite bearing assumptions are discussed. Finite element methods for the analysis of fluid-film bearings of arbitrary geometry will be introduced.

ME 627 Bio-Fluid Mechanics

This course will provide a discussion of the fluid mechanical principles underlying the operation of physiologic systems, including the heart and circulatory system and the lungs and pulmonary system. Topics to be covered will include blood rheology, mechanics of circulation, arterial wave propagation,

oscillatory air and liquid flows and transport of dissolved or suspended solutes. Emphasis will be placed on developing quantitative understanding of blood flow through the arterial system and air flow through the pulmonary system, both in health and in disease.

ME 628 Applied Biomaterials

The objective of this course is to provide students a fundamental understanding of biomaterials, implant applications, and their design consideration. This course provides an overview of materials used in biomedical applications. Topics covered include structure and properties of hard and soft biomaterials, material selection for medical applications, material performance and degradation in hostile environments, and typical and abnormal physiological responses to biomaterials/environments.

This course will also provide students a broad understanding of cutting edge development in nanomaterials and their potential applications in tissue engineering.

ME 629 Biomechanics

Course focuses on treatment of human body as a mechanical system to evaluate the effects external forces have on the musculoskeletal system. Course uses static models of equilibrium and computer software to analyze the effects of physical tasks on the body and to assess the likelihood of injury. Topics include musculoskeletal system, static modeling, and bio-instrumentation.

ME 630 Manufacturing Systems

Introduction to computer-aided manufacturing. Computer-aided process planning; control and monitoring of processes. Numerical control and industrial robots. Application of simulation techniques to analysis of large scale operations. Production-distribution models; model construction; validation of simulation models; limitations of simulation techniques; programming with simulation languages. Focuses on advanced topics in the manufacturing systems and technologies, including design for manufacturing, failure mode and effect analysis, concurrent engineering, lean manufacturing, cellular manufacturing, Six Sigma, statistical process control, and emerging nanotechnology.

ME 631 Applied Bio-Transport

Mass and heat transport processes. Metabolic processes. Mass and momentum transport in living systems. Spatially lumped and distributed models of organs, tissues and cells. Numerical methods for computer simulation. Applications to cells, tissues, and organs.

ME 635 Adv. Vibrations

Vibration of single and multiple-degree of freedom systems, continuous systems, FE formulation, computer aided modal analysis, and random vibrations.

ME 640 System Modeling

This course is designed to introduce the student to advanced systems modeling techniques and response characterization. Mechanical, electrical, fluid, and mixed type systems will be considered. Energy-based modeling methods such as Lagrange's methods will be used extensively for developing systems models. System performance will be assessed through numerical solution using MATLAB/Simulink. Computer projects using Matlab/Simulink will be assigned and graded in this course. Linearization of nonlinear system models and verification methods are also discussed.

ME 646 nonlinear Dynamics

Nonlinear oscillations and perturbation methods for periodic response; bifurcations and chaotic dynamics in engineering and other systems.

ME 654 Sustainable Energy Management

This course provides an overview of mechanical and associated control systems within buildings with an emphasis on sub-systems which possess the most visible energy signature in terms of energy usage, energy inefficiency, and societal/global impact. Fundamentals of system operation are explored as well as energy management techniques. Using domestic and international case studies which highlight energy management within the built environment, students will explore methods by which engineers have achieved solutions aligned with sustainability.

ME 655 Fundamentals of Sustainable Engineering

Application of engineering processes to design creative, innovative, and economically viable fuels, powertrains, vehicles, and transportation systems that promise to significantly reduce the use of fossil fuels and the production of greenhouse gasses. Product lifecycle from various perspectives and highlights the leverage over material, process, and environmental impacts available at the design phase. Tools and strategies for reducing the environmental impacts associated with the sourcing, manufacture, use, and retirement of products will be reviewed and evaluated.

ME 660 Alternative Fuels and Energy Efficiency

Exploration of the global energy demand and its environmental impact for continued human development. Alternative and petroleum-based fuels will be examined for near-term and long-term solutions. Includes researching, developing presentations, and participating at a high level of activity.

ME 665 Convection Heat Transfer

Fundamental principles of heat transmission by convection; theoretical, numerical, and empirical methods of analysis for internal and external flows.

ME 670 Fuel Cells

The fundamental principles of electrochemistry f, and the design and operation of different types of fuel cells. This course covers the fundamentals of electrochemistry relevant for fuel cells, and the basics of fuel cell technology. Emphasis will be placed on PEM fuel cells for automotive applications, and on solid oxide fuel cells for auxiliary power units. Concepts in catalysts for fuel reforming, water gas shift, and preferential oxidation of hydrocarbons will be covered, along with hydrogen storage and hydrogen safety.

ME 650-653 Special Topics

Subject matter to be selected from topics of current interest.

ME 685-688 Independent Study

Individual study in advanced mechanical engineering areas. This course is used by students who plan to study a topic on an independent study basis. The student must obtain the permission of the appropriate faculty member before registering for the course. Students registering for more than four credit hours must obtain the approval of both the department head and the adviser.

ME 699 Design Project

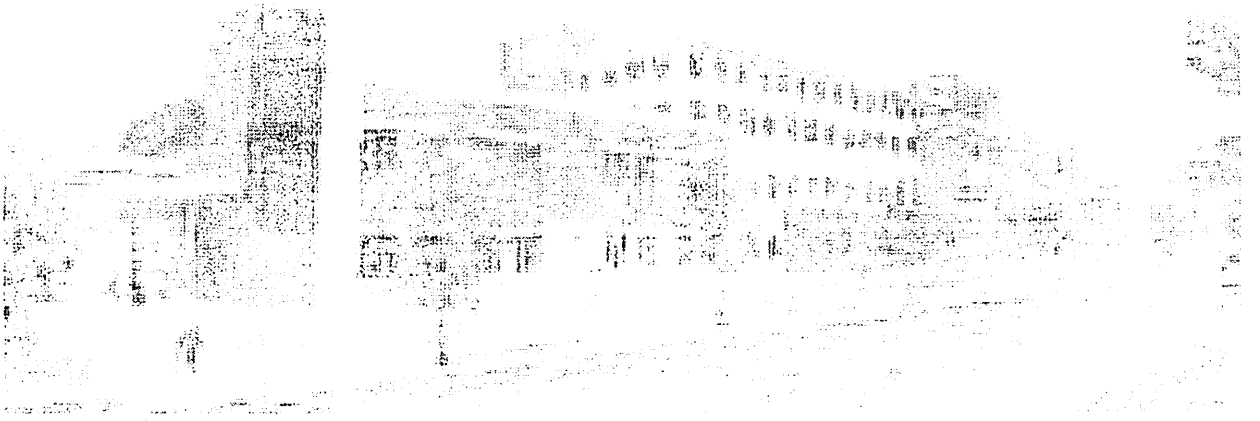
This course is used by students in the master of engineering degree program for conducting an independent project. The student must demonstrate an acquired competence in an appropriate topic within mechanical engineering. The topic is chosen in conference with a faculty adviser. The work may involve an independent research and/or a design project and/or literature search with a demonstration of acquired skill. A written paper, approved by the adviser and the department, and an oral presentation of the work are required.

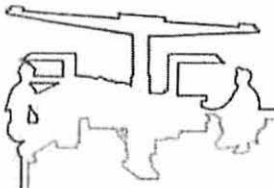
ME 681 Engineering Research

In conference with a faculty adviser, an independent engineering project or research problem is selected. The work may be of a theoretical and/or computational nature. A state-of-the-art literature search in the area is normally expected. A formal written thesis and an oral defense with a faculty thesis committee are required. Submission of bound copies of the thesis to the library and to the department and preparation of a written paper in a short format suitable for submission for publication in a refereed journal are also required. Approval of department head and faculty adviser needed to enroll.

Appendix B

Letters of Support





J. H. FLETCHER & CO. Box 2187 — Huntington, WV 25722-2187 — 304/525-7811 — FAX 304/525-3770

September 8, 2014

Subject; Marshall Letter of Support

To whom it may concern,

My company is J. H. Fletcher & Company, (Fletcher®). Fletcher is located in Huntington, West Virginia. Fletcher is the world's leading supplier of underground mining roof bolters. We design and manufacture roof bolters and other specialized mining equipment that keeps miners safe. We have supplied equipment for mines all around the world.

Fletcher is located in the tri-state location of Northeast Kentucky, Southeast Ohio, and Western West Virginia. We are several hours from the nearest mechanical engineering schools.

We are in support of Marshall University to establish BSME and MSME program. We feel our company can benefit greatly by partnering with Marshall to establish a strong and accredited engineering program in our community. Not only does Fletcher benefit but so does our tri-state community giving our children options of gaining a quality engineering education close to home.

Please let it be known J. H. Fletcher & Co fully supports Marshall University as it establishes and advances its engineering program.

Sincerely,

Tim Burgess

Tim Burgess, PE
Vice President of Engineering
J. H. Fletcher & Co.

Cc Doug Hardman
Rod Duncan
Greg Hinshaw

Marathon Petroleum Company LP

11631 US 23
Catlettsburg, KY 41129
Telephone 606/921-3333
FAX 606/921-3290

September 22, 2014

Asad A. Salem, Ph.D
Professor and Chair
Weisberg Division of Engineering
College of Information Technology and Engineering
Marshall University
Huntington, WV 25755-2586

Re: Marathon's Support of Marshall University developing a Mechanical Engineering Program

Dear Dr. Salem:

On behalf of Marathon Petroleum Corporation, I would like to express support for the development and accreditation of a Mechanical Engineering program at Marshall University. Marathon maintains a strong presence in the tri-state area in the form of our Catlettsburg (KY) Refinery, and other local facilities. 81 Marshall graduates are currently employed at the Catlettsburg site, but only two of those are recent engineering graduates. Having a vibrant Mechanical Engineering presence locally would provide an excellent source of engineers for Marathon and a source of jobs for Marshall graduates. Marathon employs a large number of engineers throughout our seven-refinery system and support groups. The Catlettsburg Refinery currently employs 113 degreed chemical, mechanical, electrical, and civil engineers. We utilize Mechanical Engineers in a variety of roles including project engineering, project management, maintenance support, and equipment reliability in addition to supervisory positions. We also utilize a robust co-op student program that involves the employment of engineering students to fill over 80 year-round positions. Marathon would welcome a quality, local source of engineers to fill these full-time and co-op positions.

Currently we recruit at a number of universities within reasonable proximity to our refineries including several that surround Marshall University (Virginia Tech, West Virginia Tech, The Ohio State University, University of Toledo, University of Cincinnati, University of Louisville, and The University of Kentucky). Marshall University would make a nice fit into our recruiting network and Marathon would provide an attractive source of employment opportunities for Marshall University ME graduates.

In summary, Marathon wholeheartedly supports the continued development of Marshall's Engineering Department in general and the Mechanical Engineering Department in particular. A recent forecast by Kelly Services quoted in Civil Engineering magazine (September 2014) predicts an increase of almost 250,000 engineering jobs in the US economy in the next ten years of which over 25,000 of those will be mechanical engineers. With the continued growth in the oil and gas sector including the Utica and Marcellus shale areas in West Virginia, Ohio, Pennsylvania, and New York, many of those jobs will be very reachable for Marshall graduates. Now is an excellent time to begin meeting the needs of the engineering market.

Sincerely,

Dan Schlaeppi
Engineering Manager
Catlettsburg Refining, LLC

CC: J. Lane
R. Hernandez
G. Jackson
M. Churton

GRW | engineering | architecture | geospatial
801 Corporate Drive | Lexington, KY 40503
859.223.3999 | www.grwinc.com

October 22, 2014

Asad A. Salem, Ph.D
Chair of the Weisberg Division of Engineering
College of Information Technology and Engineering
Marshall University
Huntington, WV 25755-2586

Dear Dr. Salem:

I have reviewed and studied the Intent to Plan for both the Bachelor of Science – Mechanical Engineering and the Master of Science in Mechanical Engineering Programs proposed for Marshall University.

As an employer of mechanical engineers, I have first-hand knowledge of the difficulty in recruiting mechanical engineers. The available pool is scarce and that difficulty will increase significantly when the "baby boomer" generation begins to retire. I recently read that it is estimated that over 33% of the engineers employed in architectural/engineering firms in the United States are over 55 years old.

Marshall University is situated in a region that is heavily industrialized as well as a major energy producing area. The demand for mechanical engineers in these markets far exceeds the availability, resulting in increased costs to employers in the recruitment and retaining graduate mechanical engineers to meet this ever-growing demand.

The need for these two programs outlined in the Intent to Plan is compelling and irrefutable. I strongly support the development of these two programs at Marshall University.

Very truly yours,

Ron D. Gilkerson, PE
President

RDG/rf

January 2, 2015

Asad A. Salem, Ph.D
Professor and Chair
Weisberg Division of Engineering
College of Information Technology and Engineering
One John Marshall Drive
Huntington, WV 25755-2586

Dear Dr. Salem:

I wanted to take a moment and to tell you that I am pleased that Marshall University is expanding their engineering program to include a Bachelor and Masters of Science in Mechanical Engineering. As you are aware I have been associated with the engineering program at Marshall during my forty year career at the U.S. Corps of Engineers in Huntington, West Virginia and now during my career at Triad Engineering, Inc. Although my professional work is more directly related to the civil engineering profession, I often work on projects that require the services of a mechanical engineer. From my experience at the Corps and working with other firms that provide mechanical engineering services, the addition of the Mechanical Engineering program at Marshall University will help to fulfil a shortage of mechanical engineers in this area.

I fully support the addition of a Bachelor and Masters of Science in Mechanical Engineering at Marshall University.

Sincerely;

David F. Meadows

David F. Meadows, P.E., P.S.
Southwest Regional Manager

Salem, Asad

From: David.S.Webb@dupont.com
Sent: Wednesday, January 21, 2015 3:58 PM
To: Salem, Asad
Subject: David Webb - DuPont

Dr. Assad Salem,

Thank you very much for your time and explaining the status of the engineering program at Marshall University. I believe that a Mechanical and Engineering school at Marshall is an absolute necessity for the region. This will help drive businesses to expand and develop faster with a larger pool of skilled engineers to choose from in the Tri-State Area. Recruiting of engineers from outside the state that did not grow up here is very difficult. A local engineering University in the Huntington vicinity solves the problem long-term for companies and corporation. It allows us grow more easily with stable work force that want to live in this are...

I believe this will also drive entrepreneurship in starting and building high-tech new businesses not only in Hunting but the Tri-State area in general. In addition, it will also help attract large corporations to locate in the area and/or expand more easily.

The FACT the Marshall University already has a Civil engineering program that is ABET certified and is on its way to this certification in Mechanical Engineering. I would like to announce my support for the coop program for Mechanical Engineering program at Marshall University. I would like to begin recruitment of the first coops in the program in February 2015 for the Summer and Fall Semesters of 2015.

Please advise to a target date in February for me to come an interview student candidates.

I look forward to meeting your new potential engineers.

Regards,

David Webb
Belle MIQA Leader
901 West Dupont Road.
Belle, WV. 25015
P: (304) 357-1376
F: (304) 357-1022
C: (304) 521-3037
e-mail: david.s.webb@dupont.com

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Appendix C

INTENT TO PLAN

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING –BSME

MARSHALL UNIVERSITY ADMINISTRATIVE UNIT:

THE WEISBERG DIVISION OF ENGINEERING

COLLEGE OF INFORMATION TECHNOLOGY AND ENGINEERING

PROPOSED IMPLEMENTATION DATE: FALL 2015

January 23, 2015

Intent to Plan

Bachelor of Science-Mechanical Engineering –BSME

Marshall University Administrative Unit:

The Weisberg Division of Engineering, College of Information Technology and Engineering

Proposed Implementation Date: Fall 2015

Contact Persons:

Wael Zatar, Dean
College of Information Technology and Engineering
(Zatar@marshall.edu)

&

Asad Salem, Chair
Weisberg Division of Engineering
(salema@marshall.edu)

Intent to Plan
Degree: Bachelor of Science-Mechanical Engineering (BSME)
Major: Mechanical Engineering

Marshall University Administrative Unit:
The Weisberg Division of Engineering, College of Information Technology and Engineering
Proposed Implementation Date: Fall 2015

Brief Program Description:

This is an Intent to Plan for a Bachelor of Science in Mechanical Engineering Program (BSME) by the Weisberg Division of Engineering of the College of Information Technology and Engineering (CITE) to graduate mechanical engineers for meeting West Virginia's increasing technological demands. Graduates of this Program will contribute to West Virginia's economic development, advance its competitive edge globally and contribute to improvement in the quality of life.

The American Society of Mechanical Engineers (ASME) defines mechanical engineering as "the branch of engineering that serves society through the analysis, design, and manufacture of systems, at all size-scales that convert a source of energy to useful mechanical work." In 2004, the ASME noted in its publication, "A Vision of the Future of Mechanical Engineering Education," that mechanical engineering education was "changing" in order to address "societal concerns." As such, the BSME program at Marshall University (MU) will emphasize service, systems-based knowledge, and sustainability with an eye toward the interface of traditional mechanical engineering with new and emerging fields. In accordance with the standards set forth by the Accreditation Board for Engineering and Technology (ABET) and MU's mission, the specific educational objectives of this program are to graduate students who will:

1. Practice the mechanical engineering discipline successfully within community-accepted standards,
2. Possess teamwork and communications skills to develop a successful career in mechanical engineering,
3. Fulfill professional and ethical responsibilities in the practice of mechanical engineering, including social, environmental and economic considerations,
4. Engage in professional service, such as participation in professional society and community service,
5. Engage in life-long learning activities, such as graduate studies or professional workshops, and
6. Develop a professional career in the prevailing market that meets personal goals, objectives and desires.

Accordingly, graduates will have the ability to work professionally and ethically, as individuals and in multi-disciplinary teams, in both the thermal and mechanical systems areas, including the design, manufacture, and control of such systems. Moreover, they will develop a deep understanding of the impact of engineering solutions from a global, financial, environmental, societal, political, ethical, health and safety, and sustainability perspectives.

The University and the Weisberg Division of Engineering will actively recruit and train students from under-represented populations in the West Virginia and Tri-State region, beginning in middle school and continuing through high school. The BSME degree program will be built on the foundation of the faculty members and facilities in MU's ABET-accredited B.S. degree program in General Engineering (BSE). To a substantial extent, the supporting coursework and infrastructure for a new BSME program is in place as a

result of our current program in general engineering, most of the cost of the expanded program will be incremental and offset by the current program. The proposed BSME program, however, is geared toward the development of conceptual skills and the acquisition of specific knowledge regarding engineering systems, delivered in a sequence of engineering fundamentals and design courses that rely upon a foundation of advanced mathematics and science courses. Accordingly, the BSME will differ from the existing BSE program, which is currently oriented toward Civil Engineering related applications. Therefore, three new faculty with doctoral degrees in Mechanical Engineering will be added in the first two years of the program.

From its inception, the BSME program will be designed to meet ABET accreditation standards. To be able to address the afore-mentioned "societal concerns," the BSME program will incorporate a multi-disciplinary approach to the curriculum including a strong liberal arts component. The university's core curriculum with its emphasis on ethics provides the basis for such an approach. The curriculum will include courses that address MU's geographical location and the regional needs including energy, mining, materials, manufacturing, etc. Finally, an optional Co-Operative education component will be included that involves a full-time internship in industry, patterned after recent recommendations of the National Academy of Engineering and similar to other leading engineering programs.

ABET is the accreditation agency for engineering and MU's BSE program is already accredited by ABET. Marshall will also seek ABET accreditation for the proposed undergraduate program in mechanical engineering. ABET does not consider, however, an institution for accreditation until the program produces its first graduate(s). It is anticipated that the first graduating class of mechanical engineering students will receive their BSME degrees by the end of the Spring 2017 semester. Therefore, MU will make a Request for Evaluation (RFE) to ABET during the 2016-2017 academic year, which would require completing a self-study report in June 2017and a comprehensive site visit during the Fall 2017 semester. The Results of the accreditation visit shall be known during the Fall 2018, and would be considered retroactively for the graduating student class in May 2017. All components of the program will be designed to be consistent with ABET accreditation standards, and accreditation expenditures have been built into the budget for the program beginning in the first year. Designing the program to meet ABET standards from the start will facilitate the program's eventual accreditation.

The proposed program will require three additional faculty and one laboratory technician. The program will cost approximately $7.45 million during its first five years, of which about $750,000 will be used to develop needed laboratories. The program is expected to generate $11.67 million in revenues during the first five years. Enrollment is expected to increase over this period; it is expected that, after the first five years, 68 students will have graduated with a BSME degree and approximately 200 students will be actively pursuing a BSME degree at MU.

The primary tangible objective of the BSME program will be to prepare students for the professional practice of engineering. Upon completion of a mechanical engineering degree, students will have completed the "education" component of the three requirements for licensure from the West Virginia Board of Professional Engineers (WVBPE). All individuals seeking licensure to practice engineering are required to take the Fundamentals of Engineering (FE) examination and the Principles and Practice of Engineering (PE) examination, prepared by the National Council of Examiners for Engineering and Surveying (NCEES) and administered by state licensing boards, such as the West Virginia Board of Registration for Professional Engineers (WVPEBD). To qualify for licensure from the WVPEBD, candidates must hold a bachelor degree from an ABET-accredited engineering program. Accordingly, mechanical engineering students will be strongly advised to complete WVBPE's FE exam in their senior year to facilitate progress toward qualification for their PE licenses.

Background:

After a decades-long absence, undergraduate engineering was reestablished on the Marshall University campus in the fall of 2006 when the Marshall University Board of Governors approved the Bachelor of Science in General Engineering (BSE) degree. The BSE degree is a general engineering that also allows students to pursue areas of emphasis in particular engineering fields of study. Based on student interest and regional needs, the first area of emphasis offered was civil engineering (CEE). During this time, the BSE program has continued to grow and develop and provide additional resources to its students. The program moved into the newly constructed Arthur Weisberg Family Engineering Laboratory building in 2009, which houses most of the current engineering faculty and associated laboratories and student study resources. Since the 2009, the program has grown and acquired many resources to add another area of emphasis. Based on market demands and the available resources, we believe it is the right time to expand engineering program to include a mechanical engineering discipline. For Instance, the program has recently hired four new full time tenure track faculty in the area of mechanical engineering. Construction is also underway on the Arthur Weisberg Applied Engineering Complex, a 145,000 square ft. facility that will serve as the new home for all of the academic programs in the College of Information Technology and Engineering, including the BSE program, with associated expanded teaching and research laboratories, classrooms, offices, computer laboratories, and student study/work areas. The General Engineering Program (BSE) is a broad interdisciplinary program which, often, does not lend itself well to multiple areas of emphasis. Therefore, adding a mechanical engineering area of emphasis proved to be problematic and cumbersome at least in issues related to ABET accreditation. After careful and in-depth analysis, the faculty of the Weisberg Division of Engineering along with the Engineering Advisory Board believe creating a Bachelor of Science in Mechanical Engineering (BSME) is the appropriate approach to address current and future demands for engineers within the discipline.

The Objectives of the Bachelor of Science in Mechanical Engineering (BSME) program has several key components:

1. Practice the mechanical engineering discipline successfully within community accepted standards,
2. Possess teamwork and communications skills to develop a successful career in mechanical engineering,
3. Fulfill professional and ethical responsibilities in the practice of mechanical engineering, including social, environmental and economic considerations,
4. Engage in professional service, such as participation in professional society and community service,
5. Engage in life-long learning activities, such as graduate studies or professional workshops, and
6. Develop a professional career in the prevailing market that meets personal goals, objectives and desires.

These program objectives are consistent with the mission of the university; specifically with the following components contained in the *Marshall University Mission Statement* (http://www.marshall.edu/www/mission.asp):

Marshall University will

- provide affordable, high quality undergraduate and graduate education appropriate for the state and the region;
- foster faculty, staff, and student outreach through service activities;
- promote economic development through research, collaboration, and technological innovations;

BSME Program Learning Outcomes: Marshall University BSME graduates shall have:

a. an ability to apply knowledge of mathematics, science, and engineering
b. an ability to design and conduct experiments, as well as to analyze and interpret data
c. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
d. an ability to function on multidisciplinary teams
e. an ability to identify, formulate, and solve engineering problems
f. an understanding of professional and ethical responsibility
g. an ability to communicate effectively
h. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
i. a recognition of the need for, and an ability to engage in life-long learning
j. a knowledge of contemporary issues
k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
l. an ability to apply principles of engineering, basic science, and mathematics (including multivariate calculus and differential equations); to model, analyze, design, and realize physical systems, components or processes.
m. an ability to work professionally in thermal systems
n. an ability to work professionally in mechanical systems

The proposed BSME program is designed to provide the "core engineering courses" and " required mechanical engineering courses" while allowing students to "prescribed electives". Of the 132 total credits required to graduate from the BSME program, over half are allocated to these two components ("broad engineering core" and " required mechanical engineering") to summarize, the BSME program requirements are distributed among the various educational components as shown in the following table:

Category	**Semester Credit Hours**
General Education Core (I, II, add. Univ. Req., Math & Science) Curriculum	54*
Required Courses	69

Prescribed Electives	**9**
Free Electives	**0**
Other *(Specify, e.g., internships, clinical work)*	**(if not included above)**
TOTAL	**132***

Mechanical Engineering is an engineering discipline that requires an understanding of mechanics, kinematics, thermodynamics and energy, and involves the application of principles of physics and mathematics to develop mechanical systems. The American Society of Mechanical Engineers (ASME) defines mechanical engineering as: the branch of engineering that serves society through the analysis, design, and manufacture of systems, at all size-scales that convert a source of energy to useful mechanical work. The discipline has evolved to include micro-, nano- and bio-systems, nano- and bio- materials, renewable, alternative fuels (Such as Coal-to-SNG), and energy systems.

The proposed mechanical engineering program will graduate students ready for successful careers as practicing engineers as well as for graduate work in advanced research degrees, and it will increase West Virginia's enrollment capacity to meet the needs of additional West Virginia, Tri-state region, and international high school graduates seeking careers in mechanical engineering. Additionally, these students will have attributes aligned with those of the Marshall University Engineering graduates, being socially conscious and innovative in addition to being technically excellent.

The need to take actions for maintaining technological leadership of the United States is progressively becoming more urgent. Developing cutting-edge technology through cultivating innovation is critically important in the global competitive environment. Engineering education is one of the most important aspects of this innovation-cultivating process. Many states are now recognizing a shortage of engineers and are taking actions to address this urgent problem.

The U.S. Bureau of Labor projected a 5-8 percent increase in the national demand for mechanical engineers closely related fields (manufacturing and materials) between 2012 and 2022. The demand for engineers with expertise in the design and development of mechanical systems for occupational safety and biomedical applications is projected to increase 13% nationally over the same period. The demand for engineers with expertise in the design of mechanical systems associated with alternative fuels and renewable energy is projected to increase 12% nationally in the next 10 years.

The Energy Strategy for West Virginia indicates that alternative fuel production is a high priority industry area for the State. Similar to most engineering fields, job vacancies are being filled by foreign engineers who are generally trained in a traditional way. The need for engineers who can innovate for the future can only be met when we graduate engineers who are educated under a new paradigm proposed in the National Academy of Engineering (NAE) report entitled "The Engineer of 2020." The proposed BSME program will ramp up engineering education in West Virginia for meeting its own needs, and build the nation's capacity and provide incentives for graduating U.S. engineers in this critical area.

The MU Faculty of Engineering is uniquely prepared to develop a Mechanical Engineering Program that meets the expectations of the NAE report. Engineering graduates in the 21st Century must be technically competent and dedicated to the improvement of humankind. The proposed Mechanical Engineering Program will be organized to educate engineers for careers devoted to the integration of discoveries from multiple fields and take advantage of multiple disciplines available in the University's liberal arts environment. MU already has all necessary academic units and complementary programs in general engineering to support this proposed Program. Weisberg Engineering faculty and academic resources will support needs for the new Program; however, three new faculty, five mechanical engineering related labs, about twenty new courses in the targeted Mechanical Engineering areas and one support staff will be needed. The approach for building this Program proposal has been to leverage MU resources and complement engineering programs of other institutions to meet the State's needs for practicing engineers. The new mechanical engineering program will bridge a wide variety of application domains especially for the future energy and bio-based economy. The needed labs for the BSME will require approximately 20,000 sq. ft. of additional teaching laboratory space as well as additional appropriate support staff. All needed space will be accommodated in the Weisberg Family Applied Engineering Complex and the Weisberg Engineering Lab.

This new degree is projected to have around 200 majors in its fifth year. MU has a very strong commitment to recruiting students from underrepresented groups. The engineering program will actively recruit students from the underrepresented groups and International students to advance this mission.

JUSTIFICATION AND NEED FOR THE PROGRAM

Several studies at the national, state, and local levels have delineated the overall needs for additional engineers and scientific personnel. For example, the National Academy of Engineering, the National Academy of Sciences and the Institute of Medicine recently produced a report (2007): "Rising Above The Gathering Storm: Energizing and Employing America for a Brighter Economic Future." This report summarizes the huge demand for engineers and science (STEM) graduates in U.S. industries and universities. The report indicates that to address the deficit in engineering and scientific knowledge, the nation must import foreign nationals to close the gap between supply and demand. As financial opportunities in foreign countries increasingly develop via globalization, the U.S. is going to find itself with a deficit of talent that will negatively impact its ability to maintain its world leadership in science and engineering. The Gathering Storm report defines a "compelling call to action" to draw more underrepresented U.S. citizens into engineering and science.

Thomas Friedman in his highly acclaimed book "The World is Flat" highlights staggering statistics showing how far the U.S. trails the world in meeting its science and technology needs. Societal need for graduates of science and engineering has been a concern of policy makers and educators for many years and now this concern is exacerbated with advances in China and India. Foreign graduates are being sought for high-paying, knowledge-based jobs or the work is being outsourced because of a lack of qualified U.S. educated engineers. In his more recent publication,

"Hot, Flat and Crowded," Mr. Friedman takes a look at the rapid changing of the world through climate change, population growth and globalization. In this 2008 book, he urges the U.S. to become a world leader in developing 'green' technologies needed for the coming era he calls the "Energy-Climate Era." Without becoming a leader in these technologies, he fears that the U.S. will be shunted aside by other nations. The need to take actions for maintaining the technological leadership of the United States is progressively becoming more urgent. Developing cutting-edge technology by cultivating innovation is critically important in this competitive environment.

Engineering education is one of the most important aspects of this innovation cultivating process. Many states are now recognizing a shortage of engineers and are taking actions to address this urgent problem.

These conclusions have been reached through a deliberate process of studying the current state of engineering education in the state and country, future trends and needs of society, the role of the U.S. in the knowledge-based society and global economy for high-impacting jobs and markets, the need of the state for economic development and the role of MU as a public supported university in economic development.

Advances in the technological sector have increased the opportunities for mechanical engineers as new manufacturing technologies, materials, and products are developed and brought to market. Employment of mechanical engineers in manufacturing will continue to increase as the demand for improved machinery and machine tools grows and as industrial machinery and processes become increasingly complex. Opportunities for mechanical engineers in defense-related companies will also grow as aircraft and other weapons systems are upgraded with new materials, control systems, and manufacturing technologies. Thus, career prospects for new graduates in Mechanical Engineering are excellent. According to the U.S. Department of Labor, the total number of mechanical engineers employed in the U.S. in 2004 was about 250,000 (16% of the total number of engineers), second only to civil engineers (16.4%).

The U.S. Department of Labor, Bureau of Statistics, reported that nationwide, the number of mechanical engineers and closely related grew by 14% between 2006 and 2014(from 225,000 to 254,000); and it is expected to grow to about 288,000 in year 2019. While the national growth projection for all mechanical engineering positions is only 13% (or 34,000 jobs by 2019), the national growth projection for mechanical engineers working in the bio-technology industry is projected to grow by 21% and for mechanical engineers working in energy related industries is projected to grow by 12%. U.S. Census Bureau (Field of Bachelor's Degree in the US: 2009; Issued February 2012) reported that there are 4.452 million engineers of 25 years and over in the USA; with 1.410 million in the age bracket of 25-39 and 2.252 million in the age bracket of 40-64. Therefore; the overall job opportunities in engineering are expected to be good because the number of engineering graduates should be in rough balance with the number of job openings between 2010 and 2020. In addition to openings from job growth, many openings will be created by the need to replace current engineers who retire or transfer to management, sales, or other occupations; or leave engineering for other reasons. Therefore, in the next 20-25 years US academic institutions are expected to graduate, on average, about 125,000 engineers per year to keep up with demands. The American Society of Engineering Education (ASEE), in its annual

report (Engineering by the Number-2011; www. asee.org/colleges) reported that in 2010-2011, all US Institutions graduated only 83, 001 engineers of which 6.7% were nonresident aliens.

Employment of engineers is expected to grow about as fast as the average for all occupations over the next decade, but growth will vary by specialty. Mechanical engineers are projected to have about 7 percent employment growth over the projected decade, slower than the average for all occupations. But, some new job opportunities will be created due to emerging technologies in biotechnology, materials science, and nanotechnology. Additional opportunities outside of mechanical engineering will exist because the skills acquired through earning a degree in mechanical engineering often can be applied in other engineering specialties.

Competitive pressures and advancing technology will force companies to improve and update product designs and to optimize their manufacturing processes. Employers will rely on engineers to increase productivity and expand output of goods and services. New technologies continue to improve the design process, enabling engineers to produce and analyze various product designs much more rapidly than in the past. Unlike some other occupations, however, technological advances are not expected to substantially limit employment opportunities in engineering because engineers will continue to develop new products and processes that increase productivity.

In West Virginia, as reported by many industrial leaders, a substantial percentage of all engineering jobs in the state are filled by graduates of out-of-state or foreign institutions. There are more than thirty large businesses in the Tri-State region that employ mechanical engineers. In recent years, many of these companies have had difficulty hiring qualified engineers and also had difficulty retaining them longer than five years. Local leaders assert that a substantial problem for them is the absence of a BSME in this region of the State to support local industries. Sample letters of support are available in Appendix C.

Currently, there are two West Virginia state supported institutions (WVU &WVUIT) that offer an ABET-accredited degree program in Mechanical Engineering or closely related fields. West Virginia lags behind surrounding states in the number of accredited mechanical engineering programs as illustrated in the table below. West Virginia could realistically justify adding at least one additional BSME program and related fields and still remain barely at the average of the neighboring states which have, on average, 1.41 programs per million residents. It is also noteworthy to mention that many BSME or closely related programs listed in the table below are larger than those in the State of West Virginia and can accommodate larger student populations. For Instance, Ohio has at least eight programs that are comparable in size of the BSME program at WVU or larger.

State	BSME Programs	Population	BSME Programs/Million
Kentucky	6	4.34 million	1.38
Ohio	15	11.25 million	1.33

Pennsylvania	19	12.70 million	1.50
Virginia	11	8.01 million	1.37
West Virginia	2	1.89 million	1.05

West Virginia also lags behind comparable states in the number of degrees awarded in Engineering in general and Mechanical Engineering in particular. The total number of undergraduate BSME degrees awarded by all USA institutions in 2012-2013 was 21,800 at an average of 66 per million capita (www.asee.org/college). However, West Virginia universities in 2012-2013 awarded only 118 degrees (www.asee.org/college) at an average of 61 per million capita of West Virginians. Therefore, West Virginia has about four-fifth (4/5) of BS degree production in Mechanical Engineering as compared to the national average.

The same situation is true in enrollments in BSME programs. In the 2012-13 academic year, there were 120,083 students enrolled in BSME programs nationwide (Engineering Enrollment 2012-13, www.asee.org/college). The total enrollment in state supported BSME programs in West Virginia during the 2006 academic year was 260 students (The Status of WV's Engineering programs, Students, and Faculty-2007) at a rate of 136 per million capita—174 per million lower than the national average, and it was estimated to be 800 students in Fall 2013. Hence, 3950 (www.asee.org/college) students enrolled in undergraduate engineering programs during 2012-2013 at a rate of 2079 per million capita of West Virginian's while the national rate was 2504 per million capita of US citizens.

West Virginia University (WVU) and West Virginia Institute of Technology (WVIT) currently offers a Bachelor of Science in Mechanical Engineering. This degree can be obtained through their Morgantown and Montgomery campuses. They enrolled 800 students in Fall 2013. There are no other public or private institutions in the State of West Virginia offering a B.S. with Mechanical Engineering. The Mechanical Engineering program at WVU provides educational and research opportunities for students in the area of aerospace engineering and materials science and engineering, In contrast, the MU BSME would offer opportunities for students to focus on energy systems, bio-systems, nanotechnology, sustainability, and worker safety. Courses offered in the MU Mechanical Engineering program build around the needs of these focus areas.

Clearly, the addition of the BSME will make MU a more effective public university. The BSME program will allow science and biomedical students interested in high-tech devices to apply advanced manufacturing, control, and transport techniques to biotechnology and/or bioengineering problems. BSEME students will be able to take science, biochemistry, and biomedical courses in addition to courses in subjects that are fundamental to ME. In addition to the BSE, the engineering students and faculty will be able to utilize many existing academic programs and resources such as: Mathematics, Physics, Chemistry, Geology, and others especially in areas related to energy, bio-systems, sustainability and manufacturing, and the interdisciplinary research of these areas will be more readily transformed for use in the development of the state.

In terms of program features, the proposed BSME program will differ significantly from WVU's and WVIT's programs in that there will be much more emphasis on the core liberal arts component and learning communities approach, more cross-integration of subject materials in the engineering courses for a systems approach. The program will, also, contain unique features that differentiate it from most traditional mechanical engineering offerings in West Virginia and sounding universities. The students in MU's BSME program will take MU's core curriculum through which they learn interpersonal skills, team efforts, and many other skills that are of value as a practicing professional. A strong emphasis on a systems approach to problem solving will be incorporated in all the engineering curricula resulting in multidisciplinary activities especially at the senior level. Accordingly, MU's BSME students will be trained to work professionally and ethically, as individuals and in multi-disciplinary teams, in both the thermal and mechanical systems areas, including the design, manufacture, and control of such systems. Moreover, they will develop a deep understanding of the impact of engineering solutions from a global, financial, environmental, societal, political, ethical, health and safety, and sustainability perspective. The curriculum will include courses directly related to MU-'s Tri-state location that will address issues related to mining, materials, manufacturing, bio-technology and fuels, etc. Moreover, the program will incorporate an optional five-year schedule involving a cooperative educational experience whereby the students in the latter part of their studies have periodic full-time work experiences in their area of interest with participating industries and businesses. Alternatively, a student may choose a fast-track approach and finish in four years (A Co-Op Plan is attached in Appendix B). In addition to the BSME, a combined BS/MS degree program will also be available for exemplary mechanical engineering students. This accelerated master's degree (program) will offer outstanding students an opportunity to earn both a bachelor's and a master's degree within approximately five years of entry to the BS program. The BS/MS program will have a strong research-oriented focus, and is primarily directed toward research oriented students or for those who ae planning on completing advanced degrees. It is noteworthy to mention such a combined degree requires a well-established a Master of Science in Mechanical Engineering (MSME) program, and it also may require special ABET accreditation for such combination. Therefore, the proposed program will not activate this combined degree before year 2018. An Intent to Plan to Master's Degree of Science in Mechanical Engineering (MSME) has been submitted to the University's Graduate Counsel and it is currently under review. The MSME's Intent to Plan is attached in Appendix H.

In sum, the proposed BSME program specifically targets the unique requirements of the 300,000-400,000 residents. The demand for high-tech workers in the State is unlikely to diminish in the foreseeable future. West Virginia, like other states in the country, must increase the number of graduates to meet the demand for high-tech workers during the next decade and beyond. U.S. and West Virginia universities need to produce more graduates because international competition for high-tech workers has increased sharply in recent years. West Virginia industries need to be insulated from the future uncertainty of international politics by having access to a guaranteed supply of new BSME graduates. Many developed and developing countries, with their own rapidly growing high-tech industries, are becoming very competitive for the same pool

of high-tech workers. Therefore, unless new degree programs are offered in high-tech areas in the regions of the country where there is a demand for such programs, the supply of skilled workers will continue to be less than adequate for the rapidly growing regional and statewide high-tech industry. In addition, in order to draw more students, especially underrepresented students, the engineering programs must be established in the vicinity of the families of the targeted students.

Enrollment Projections

Mechanical Engineering and related disciplines saw enrollment gains of 7 percent to 15 percent between 2012 and 2013 (www.asee.org). This continues a decade-long increase in mechanical engineering enrollments, which have climbed 28 percent since 2004. Within college populations sophomore and junior engineering classes showed the largest enrollment growth, each rising 9 percent over 2012.

Student interest in mechanical engineering at MU is remarkably high. In the past academic year (2013-14), bout 200 prospective students made direct contact with the University about engineering programs, of which about 60 students showed strong interests in mechanical engineering. MU's general engineering program had 190 students enrolled in Fall 2013 of which 80 were freshmen. In Spring 2014 in a quick and not formal survey of freshmen (ENGR 102 and ENGR 111, 79 students), about 35% or 27 students indicated they would be very interested in changing from BSE to a mechanical engineering program should the program exist. Furthermore, 41 out of 112 of incoming freshmen (ENGR 103-Fall 2014), and 45 out of 86 (ENGR 104 -Fall 2014) indicated a strong interest in mechanical engineering and they would choose it as a field of study should the program exist at MU. Without a local mechanical engineering option, some students have commented that they are reluctantly completing a Bachelor's of Science in General Engineering (BSE).

The estimates for student enrollment are conservative and based upon the number of student inquiries and interest shown in the proposed degree. The estimates also assume that all students will be full-time and incorporates a dropout rate of approximately 20-25%. The 20-25% average drop rate is based on MU's experience with the BSE program and on data from similar institutions (WVU, WVIT, Ohio University and UK) with BSME programs. Some of the current BSE students will undoubtedly transfer to mechanical engineering and these will tend to stay since they have achieved a level of success in BSE and will be better prepared for the BSME than students who are new to the program. It is conceivable that once the BSME program is approved and ABET accredited, the newly founded INTO program on the MU may recruit foreign students interested in the BSME degree, but these figures are not included in the table below.

Student Enrollment Projections

	Change of Major	New Students	Attrition	Graduation	Cumulative Head Count	Cumulative FTE
0th Year	15	45	0	0	60	60

2014-15						
1St year 2015-16	10	40	12	0	98	98
2nd Year 2016-17	5	50	18	0	135	135
3rd Year 2017-18	0	60	26	12 (2016-17)	157	157
4th Year 2018-19	0	70	30	20 (2017-18)	177	177
5th Year 2019-20	0	75	30	28 (2018-19)	194	194

New Catalog Description

A. Admission Requirements

- Meet Marshall University admission requirements
- Admission to the BSME Engineering program requires a minimum composite ACT score of 21 with a math score of 24, or a minimum SAT composite of 980 with a math SAT of 560.
- Transfer students must have completed MTH 127/130 College Algebra and MTH 132 Pre-Calculus.

For those needing to complete some requirements first, there is Pre-Engineering. Requirements for Pre-Engineering are a minimum composite ACT score of 19 with a math score of 19-23, or a minimum SAT composite of 900 with a math SAT of 460-550. Students who are admitted to the Pre-Engineering program generally will require an additional calendar year to complete the requirements for the B.S.E. degree. Transfer students must be eligible to take MTH127/130 College Algebra and MTH132 Pre-Calculus.

B. Graduation Requirements

The BSME degree program requires a minimum of 132 credit hours of coursework. In addition to fulfilling the University's requirements for graduation, BSME students must maintain a minimum GPA of 2.0 in all professional courses. These professional courses include mathematics (MTH 229 or above), required science courses, core engineering (ENGR) courses, mechanical engineering courses (ME), and courses used as technical electives. Entering students with a Math ACT of 24-26 are required to take MTH 132 Pre-Calculus. Such students will likely need an extra semester or summer term to satisfy BSME requirements.

C. Degree Requirements – Use this table to show the degree requirements of the program.

Category	Semester Credit Hrs	Clock Hours
General Education Core (I, II, add. Univ. Req., Math & Science) Curriculum	54*	

Required Courses	69	
Prescribed Electives	9	
Free Electives	0	
Other *(Specify, e.g., internships, clinical work)*	Optional CO-OP	
TOTAL	132*	

*The core curriculum is 54 hours as the following: Core I: 9 SCHs, Core II: 25 SCHs, Additional University Requirement: 9 SCH and additional 11 SCHs of Math and Science to satisfy ABET requirements. The total of 124 SCHs is necessary in order to meet the requirements for ABET accreditation.

D. Curriculum

As the sample Curriculum Plan illustrates (Appendix A), the BSME program has been designed with these goals in mind by providing an approximately equal mix of foundational mathematics and science courses (25%), core engineering courses (28%), and mechanical engineering courses (25%). Technical elective courses provide students an opportunity to get additional specialization or pursue individual interests.

The following tables identify the required courses and prescribed electives of the program. The courses with an asterisk (*) will be added once the program is approved. The remaining non-core curriculum engineering courses already exist (indicated by ^); to adapt these courses to mechanical engineering courses requires only moderate adjustments of the content of the courses.

Prefix & Number	Required Courses	SCH
ENGR 102^	Introduction To CAD	2
ENGR 103^	Freshman Seminar	1
ENGR 104^	Engineering Profession	1
ENGR 111^	Engineering Computations	3
ENGR 213	Statics	3
ENGR 214^	Dynamics	3
ENGR 215^	Engineering Materials	3
ENGR 216^	Mechanics of Materials	3
ENGR 217*	Cooperative Education- CO-OP	1
ENGR 219^	Thermodynamics	3
ENGR 221^	Engineering Economics	3
ENGR 240^	Manufacturing Processes	3
ENGR 245*	Introduction to Circuits and Controls	3
ENGR 318^	Fluid Mechanics	3
ENGR 319^	Fluid Mechanics Lab	1
ME 310*	Thermodynamics II	3

ME 320*	Fluid Power	3
ME 325*	Mechanical Engineering Lab. I	1
ME 330*	Manufacturing Methods in Design	3
ME 340*	Design of Machine Elements	3
ME 350*	Heat Transfer	3
ME 410*	Kinematics & Design of Machines	3
ME 420*	Mechanical Instrumentations and Control	3
ME 425*	Mechanical Engineering Lab. II	1
ME 440*	Design and Analysis of Energy Systems	3
ENGR 451^	Project Management	3
ENGR 452^	Senior Engineering Seminar	1
ENGR 453^	Senior Project (Capstone)	3
MTH 229	Calculus I	5
MTH 230	Calculus II	4
MTH 231	Calculus III	4
MTH 335	Applied Statics	4
MTH 345	Differential Equations	3
PHY 221	Physics I	4
PHY 202	Physics I Lab.	1
PHY 213	Physics II	4
PHY 204	Physics II Lab.	1
CHM 211	General Chemistry I	3

Prefix & Number	Prescribed Elective Courses	SCH
ME430/531*	Design of Thermal Systems**	3
ME 435/536*	Design of Mechanical Systems**	3
ME 445*	Hydraulic and Pneumatics Controls	3
ME 447*	Engineering Analysis	4
ME 450*	CNC and Rapid Prototyping	3
ME 455*	Metallurgy	3
ME 460*	Vibrations	3
ME465*	Mechatronics	3
ME 470*	HVAC	3
ME 475*	Programmable Logic Controls (PLC)	3
ME 48X*	Other Special Topic Courses	3
ME 510*	Dynamics of Compressible Fluids	3
ME 515*	Vehicle Dynamics	3
ME 520*	Introduction to Computational Fluid Dynamics	3
ME 530*	Renewable Energy	3
ME 550*	Nano- Materials	3
ME 560*	Automation and Robotics	3
ME 570*	Finite Elements	3

ME 570*	Sustainable Energy Systems	3

** Students choose one or the other of these two courses and two of the remaining courses for a total of 9 hours.

All mechanical engineering students must complete a senior-level senior project (Capstone) in ENGR 453. The capstone project will require students to work with practicing engineers to gain field experience. Mechanical engineering faculty may incorporate research projects from other colleges and departments of MU or industry in the capstone projects. The Engineering Advisory Board (drawn from local industries and community leaders) will assist with the process of identifying projects for students to implement.

Undergraduates accepted to an Accelerated Master's Degree program can begin taking graduate coursework in their senior year up to a maximum of 9 hours in place of the two technical electives and the design elective (can be fulfilled by ME 531 or ME 535). Students reduce the number of hours required to complete the Bachelor's degree by the number of graduate hours they complete (up to a maximum of 9). They must meet all other degree requirements for their Bachelor's degree while they work on their Master's degree. None of the credit hours used for the Bachelor's degree can be counted toward the Master's degree.

E. **Eligibility Requirements for Accelerated Master's Degree Program**

- must have completed at least 90 hours toward the Bachelor's degree;
- must have at least a 3.30 overall undergraduate GPA;
- must have at least a 3.30 GPA in the major;
- must meet the admission requirements of the chosen Master's degree program

All students enrolled in the BS/MS program are required to complete a graduate thesis and conduct scholarly research.

The Engineering Advisory Board (EAB) will also facilitate the pursuit of less formal relationships earlier in the students' curriculum through field experiences, internships, and co-ops beginning in the sophomore year. Students will be encouraged to pursue optional co-op assignments during summer or full-semester terms. The EAB will assist with the identification of such co-op opportunities.

All field experiences will conclude with an exit interview of both the student participant and the student's immediate supervisor of the project.

At the freshman level, the applications for BSME and BSE are similar, and the students will work jointly on lab projects. Furthermore, students in both programs will be integrated in the senior design courses of ENGR 451 - Project Management, ENGR 452 Senior Engineering Seminar and ENGR 453 –Senior Project (Capstone). Course descriptions are included in Appendix D.

Program Implementation and Projected Resource Requirement

Faculty

As it was mentioned earlier Mechanical Engineering is wide engineering discipline that requires faculty with different expertise and knowledge. Therefore, a strong BSME program should have the support of faculty with following areas of expertise: Controls (or closely related), Design, Energy, Fluids, Kinematics and Mechanics (Dynamical Systems), Thermal Sciences and Thermodynamics, Manufacturing, and Materials. At the current time the Weisberg Division of Engineering has four engineering faculty with mechanical engineering background. Three more faculty will be needed to cover the following areas: Design, Controls, and Fluids and thermal Sciences. In addition the BSME program will require a technician or a skilled machinist to manage the machine shop and to provide support for faculty and students.

The listed tables to provide information about Core and Support faculty. An asterisk (*) indicates the individual who will have direct administrative responsibilities for the program. Appendix E contains a schedule of courses to be offered by semester, during the initial years of the program.

Name of Core Faculty and Faculty Rank	Highest Degree	Courses Assigned in Program	% Time Assigned To BSME & MSME	
Salem, Asad * Professor [Primary responsibility for administering the program]	PhD in Mechanical Engineering (Energy & Thermal Science)	ENGR 219, ME 310, 325,425, 430, 440, 530 & 570	25%	25%
Chen, Gang Associate Professor	PhD in Mechanical Engineering (Dynamical Systems)	ENGR 213, 214, 216,ME,340,410 425, 435 & 460	50%	25%
Hijazi, Iyad Assistant Professor	PhD in Mechanical Engineering (Materials)	ENGR 102, 104, 111, 215, 217,453 ME 325, 455 & 550	50%	25%
Sadique, Serdar Assistant Professor	PhD in Mechanical Engineering (Manufacturing)	ENGR 102, 213, 214,240, 453, ME 330, 425, 450 & 560	50%	25%
New Faculty (I) in Year 2016	PhD in Mechanical Engineering (Design)	ENGR 214, 216, ME 340, 410, 425, 435 & 570	50%	25%
New Faculty (II) in Year 2016	PhD in Mechanical Engineering (Thermo-Fluids)	ENGR 219, 318, 319, 453ME 325, 350, 510 & 520	50%	25%
New Faculty (III) in Year 2016	PhD in Mechanical Engineering (Controls)	ENGR 111, 217, 245,453, ME 320, 420, 445& 470	50%	25%

Name of Support Faculty and Faculty Rank	Highest Degree	Courses Assigned in Program	% Time Assigned To Program
Wait, Isaac Associate Professor	PhD in Civil Engineering	ENGR 103,104, 221, 318 & 319	12.5%
McCormick, Rick Professor	PhD in Civil Engineering	ENGR 213 & 217	12.5%
Huffman, Jeff Assistant Professor	MS in Civil Engineering	ENGR 452	12.5%
Michaelson, Greg Assistant Professor	PhD in Civil Engineering	ENGR 213, 216 & 452	12.5%
Begley, Richard Professor	PhD in Mining Engineering	ENGR 217, 221, 451& 452	12.5%
New Faculty (Replacement of Dr. Bill Pierson)- Mechatronics	Ph.D in Mechanical or Electrical Engineering (Mechatronics)	ENGR 245,ME 320, 420, 465, 475 & 560	25%
Solomon Bayisa (Supported by WV Steel)	MS. In Electrical Engineering	ENGR 245& ME 420	No Cost

It is noteworthy to mention that all BSE and BSME students are required take the following ENGR courses: 102, 103, 104, 111, 213, 214, 216,219, 221,318, 319, 451, 452 and 453. In addition, only BSME student are required to the following ENGR courses: 215, 217 and 245.

Faculty Course Load Mapping

The following table shows a typical faculty course load when the program is fully staffed and implanted.

The BSME Projected Faculty Course Load in 2016-2017

	Fall 2016						Spring 2017					
Faculty	ENGR	BSE	BSME	MSME	Total SCH	Total Cont. Hrs	ENGR	BSE	BSME	MSME	Total SCH	Total Cont. Hrs
Chen	3	0	3	3	9	9	0	0	5	3	8	9
Hijazi	3	0	3	3	9	10	4	0	3	0	7	9
Sadique	6	0	3	0	9	9	0	0	6	3	9	11
Salem	1	0	3	3	7	9	0	0	3	3	3	6
Bayisa	0	0	0	0	0	0	0	0	3	0	3	4
Mechatronics	7	0	0	0	7	8	0	3	3	3	9	10
Begley	3	3	0	3	9	9	3	3	1	3	10	10
Huffman	1	7	0	0	8	10	4	3	3	0	10	10
Michaelson	0	6	0	0	6	6	3	3	0	0	6	6
Wait	5	3	0	0	8	10	0	6	0	3	9	9
TOTAL (BSME-MSME)	13		12	9	33	37	4		17	9	27	35

From the above listed table, it is noticed that during a typical academic year the average teaching load for a designated BSME faculty is 13.0 SCH of undergraduate related courses/ year (15.2

contact Hours) and 5.0 SCH of graduate related course/ year to a total of 18.0 SCH/ year. Therefore, the faculty will have 25% time release to pursue their research interests.

The Division has five related laboratories that are associated with the existing engineering program. Most of these facilities can be utilized as associated mechanical engineering laboratories with the proper equipment complement. In addition to the five existing laboratories, a basic fabrication-machine shop with moderate capabilities and four new laboratories are needed to provide specialized mechanical engineering teaching and research competences. The needed laboratories are: Manufacturing and Robotic Systems, Fuels and Energy Conversion, Materials and Nano-Technologies, and Capstone. The needed labs for the BSME will require approximately 20,000 sq. ft. of additional teaching laboratory space as well as additional appropriate support staff. All needed space will be accommodated in the Weisberg Family Applied Engineering Complex and Weisberg Engineering Lab.

More specialized equipment will be needed to have state-of-the-art laboratories to support the academic programs. Local industries and the community are expected to raise $600,000-1000,000 for equipment, scholarships, and other start-up costs for the new mechanical engineering program. With this type of investment and a phased implementation, the laboratories will be well-equipped to meet the needs of the students.

In addition to existing engineering laboratories, the proposed program is expected to utilize the machining and manufacturing facility at the RCBI. A MOU will be developed between the Weisberg Division of Engineering/ CITE and the RCBI to enable the engineering students and faculty to take advantage of this well-equipped facility. The first time use of the RCBI is expected in Spring 2015 for the ENGR 240- Manufacturing Processes Course.

The following equipment is needed in the next three years of the program for the basic teaching labs:

Equipment	Yr. 1	Yr. 2	Yr. 3	Cost
Materials & Manufacturing Laboratory	x	x	x	$95,000
Mechanics and Material Testing Laboratory	x	x	x	$88,000
Fuels, Energy & Power Conversion Laboratory	x	x	x	$125,000
Fluid Mechanics & Fluid Power Laboratory	x	x	x	$117,000
Heat Transfer Laboratory	x	x	x	$75,000
Industrial Controls & Instrumentation Systems Laboratory	x	x	x	$105,000

Robotics & Mechanical Systems Laboratory	x	x	x	$95,000
CAD & Computing Laboratory	x	x	x	$50,000
Total	$300,000	$250,000	$200,000	$750,000

The total projected, therefore, for the teaching labs for the basic mechanical engineering courses is $550,000. The prescribed technical elective courses with the emphasis in nano- and energy sciences will require additional equipment totaling approximately $200,000 for Year 3. Budget projections include $10,000/year for normal supplies and materials for the first three years and $6000/year thereafter.

Accreditation

ABET is the accreditation agency for engineering. The proposed BSME will seek accreditation from ABET. However, ABET does not consider an institution for accreditation until the program has produced its first graduates. It's anticipated that first graduate's from the BSME will be by the end of Spring 2017. Therefore, MU's does not anticipate seeking accreditation until 2016-2017 and ABET visit is expected to take place during Fall 2017. All components of the proposed program will be designed to be consistent with ABET accreditation standards, and accreditation expenditures have been built into the budget for the program beginning in the first year. Designing the program to meet ABET standards from the start will facilitate the program's eventual accreditation. See Appendix F for ABET Standards.

III. Costs and Funding

Five-Year Costs and Funding Sources – The summary in the table below has a parallel set of detailed tables shown in Appendix G (Rounded to next thousand).

Five-Year Costs		Five-Year Funding	
Personnel[1]	$5,226,000	Reallocated Funds[2]	$2,630,000
Equipment	$750,000	Anticipated State Funding	$0.0
Program Start-Up /Development	$676,000	Special Item Funding (Industry Support)	$450,000
Annual Operating Expenses	$793,000	Tuitions &Fees	$8,595,000
Total Costs	**$7,445,000**	**Total Funding**	**$11,675,000**

1. **Includes costs for new faculty hires, adjuncts, reallocated faculty time, program administration, and clerical and technical support personnel. For new faculty and reallocated faculty, individual salaries are prorated as a percentage of the time assigned to the program.**
2. **Reallocated funds are from existing faculty and staff salaries that will be assigned to the program.**

Appendix A

Bachelor of Science –Mechanical Engineering (BSME)

Pattern Sheet

Semester 1	SCH	Status	Semester 2	SCH	Status
MTH 229 Calculus I	5	Existing	MTH 230 Calculus II	4	Existing
ENG 101 English	3	Existing	Core II Social Science	3	Existing
FYS 100 First Year Seminar	3	Existing	PHY 211 Physics I	4	Existing
Core I Communications	3	Existing	PHY 202 Physics I Lab	1	Existing
ENGR 103 Freshman Seminar	1	Modified	ENGR 102 Intro to CAD	2	Modified
ENGR 104 Engineer. Profession	1	Modified	CHM 211 Chemistry I	3	Existing
	16			17	
Semester 3			Semester 4		
MTH 231 Calculus III	4	Revised	ENGR 240 Manuf. Proc.	3	New
ENGR 111 Engineering Comp.	3	Modified	ENGR 245 Intro. Circuits and Cont.	3	New
ENGR 213 Statics	3	Existing	ENGR 219 Thermodynamics	3	Revised
ENGR 215 Engr. Materials	3	New	ENGR 214 Dynamics	3	Revised
PHY 213 Physics II	4	Existing	ENGR 216 Mech. of Mater.	3	Modified
PHY 204 Physics lab II	1	Existing	ENGR 217 Co-Op	1	New
	18			16	
Semester 5			Semester 6		
MTH 335 Differential Equations	4	Existing	ENG 201 Adv. Communication	3	Existing
ENGR 318 Fluid Mechanics	3	Modified	MTH 345 Applied Stats	3	Existing
ENGR 319 Fluid Mechanics Lab	1	Modified	ENGR 221 Engr. Econ	3	Existing

ME 310 Thermodynamics II	3	New	ME 320 Fluid Power	3	New
ME 330 Manuf. Methods in Design	3	New	ME 325 ME Lab I	1	New
ME 340 Design of Mach. Elements	3	New	ME 350 Heat Transfer	3	New
	17			16	
Semester 7			Semester 8		
ME 410 Kinematics & Design of Machines	3	New	ENGR 453 Senior Projects	3	Modified
ENGR 451* Project Management	3	Modified	Design Elective	3	New
ME 420 ME Instrumentations and Control	3	New	Technical Elective	3	New
Technical Elective	3	New	Core II, Humanities	3	Existing
Core II, Fine Arts	3	Existing	ME 440 Design of Energy Systems	3	New
ME 425 ME Lab II	1	New			
ENGR 452 Engineering Seminar	1	Modified			
	17			15	
*Writing Intensive Course			Total Credits:	132	

APPENDIX B

Weisberg Division of Engineering
Bachelor of Science –Mechanical Engineering (BSME)

Cooperative Education Program
Student Schedule Layout
OPTION I

	Fall	Spring	Summer
Freshman Year	Classes	Classes	
Sophomore Year	Classes	Classes	
Junior Year	Classes Apply to Co-Op	Co-Op	Co-Op
Senior Year 1	Classes	Classes	Co-Op
Senior Year 2	Co-Op	Classes	

FRESHMAN YEAR & SOPHOMORE YEAR

Students spend their freshman and sophomore years in classes trying to earn the highest GPA as possible. In the summer between freshman and sophomore and the summer between sophomore and junior year, students are encouraged to pursue internships, participate in research, or take summer courses to get ahead or improve GPAs. These years should be dedicated to building strong resumes for the Co-Op program.

JUNIOR YEAR

FALL: Students apply to the Co-Op program, attend an orientation meeting, attend all professional preparation meetings, and interview with companies looking for students.

SPRING and SUMMER: Students gain full-time engineering experience at a company while receiving pay.

SENIOR YEAR 1

FALL: Students continue their education and complete more classes.

SPRING: Students continue to take classes, but again go through the interview process for a second Co-Op position. This position could be with the same company the student first Co-Oped with, but does not need to be. Many students prefer to explore multiple kinds of companies.

SENIOR YEAR 2

FALL: Students continue their second Co-Op experience.

SPRING: Students complete their final semester of classes in order to graduate. Co-Op students report ease in finding full-time positions in a competitive market due to their professional experience.

OPTION II

	Fall	Spring	Summer
Freshman Year	Classes	Classes	
Sophomore Year	Classes	Classes Apply to Co-Op	CO-OP
Junior Year	Co-Op	Classes	Co-Op (Optional)
Senior Year 1	Classes	Co-Op	Co-Op
Senior Year 2	Classes	Classes	

FRESHMAN YEAR & SOPHOMORE YEAR

Students spend their freshman and sophomore years in classes trying to earn the highest GPA as possible. In the summer between freshman and sophomore years, students are encouraged to pursue internships, participate in research, or take summer courses to get ahead or improve GPAs. These years should be dedicated to building strong resumes for the Co-Op program.

SOPHOMORE

SPRING: Students apply to the Co-Op program, attend an orientation meeting, attend all professional preparation meetings, and interview with companies looking for students.

SUMMER: After accepting a Co-Op position in the spring, students spend the summer gaining full- time, paid, engineering experience at a company.

JUNIOR YEAR

FALL: Students continue to gain full-time, paid, engineering experience at a company.

SPRING: Students resume taking completing coursework.

SUMMER: Some students will be given the opportunity by their companies to complete a summer Co-Op. While only the length of a typical internship, summer co-op students are typically still provided the same level of work as a Co-Op because they do not need to be retrained by the company. This extra summer Co-Op is not required for the program.

SENIOR YEAR 1

FALL: Students resume taking classes, but again go through the interview process for a second Co-Op position. This position could be with the same company the student first Co-Oped with, but does not need to be. Many students prefer to explore multiple kinds of companies.

SPRING: After accepting a Co-Op in the fall, students gain full-time, paid, engineering experience at a company.

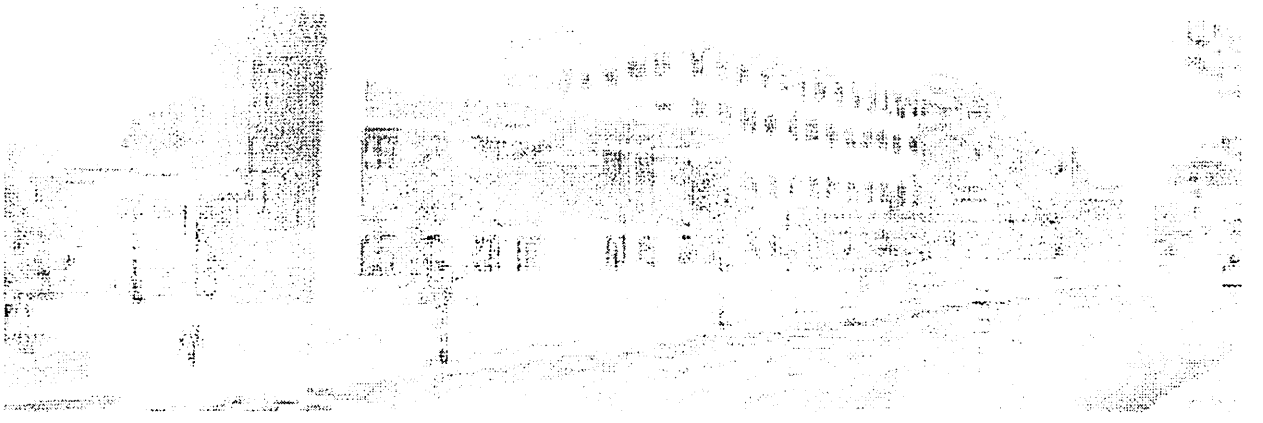
SENIOR YEAR 2

FALL: Students resume taking classes.

SPRING: Students complete their final semester of classes in order to graduate. Co-Op students report ease in finding full-time positions in a competitive market due to their professional experience.

Appendix C

Letters of Support



Appendix D

Course Descriptions

ENGR 217 Engineering Co-op Preparation
This course will prepare students for both the job search and employment in the field of engineering. Students will learn strategies for conducting a successful job search, including the preparation of resumes and cover letters, behavioral interviewing techniques, and effective use of social media in the application process. Professional and ethical responsibilities during the job search and for co-op and subsequent professional experiences will be discussed. (At least second-year standing) CR (1,0,1)

ENGR 245 Introduction to Circuits and Controls
Basic DC and AC Circuit Analysis including circuit variables and measurement, basic DC and AC circuit laws and analysis, Three phase circuits and basics control theory and applications of computer and PLC based controls. (At least second-year standing) CR (3,0,3)

ME 310 Thermodynamics II
Advanced design and analysis of gas and vapor power cycles, including cogeneration and combined cycles, using concepts of energy based on the 2nd Law of Thermodynamics and the field of thermo-economics. Emphasis is also placed on determining entropy generation and irreversibility within fuel cells and fossil fuel combustion processes using chemical energy as well as developing equations of state. (Pre-requisite: ENGR 219) **CR (3,0,3)**

ME 320 Fluid Power
This course is designed to provide a solid foundation for understanding hydraulic and pneumatic systems for power transmission and motion control. Applications include mobile and stationary equipment. This course covers key operating characteristics of most fluid power system components including compressors, pumps, valves, cylinders, and motors, design fluid power circuits, mathematically model the steady state operation of fluid power systems. The course includes a hands-on laboratory offering the chance for students to construct circuits, see component cutaways, experience component and system performance demonstrations, and work with electronic control of hydraulic systems. (Pre-requisite ENGR 319) CR (2,1,3)

ME 325 Mechanical Engineering Lab (I)
Experimentation and analysis of thermal/fluid systems, energy balances, performance measurements of devices and systems, data analysis and correlation, elements of experimental design. (Co-requisite: ME 350) CR (0,1,1)

ME 330 Manufacturing Methods in Design

Overview of manufacturing processes with emphasis on the fabrication of materials from the processing and equipment viewpoint. This course presents a broad study of the many manufacturing processes utilized in the production of a wide variety of products and components. Insight into the multitude of processing factors which influence the practical design of manufactured parts to achieve the advantages of maximum economy, accuracy and automation in everyday production. (Pre-Requisite: ENGR 240) CR (3,0,3)

ME 340 Design of Machine Elements
This course will introduce the analysis and design of power transmission systems. Topics covered include spur, helical, bevel, and worm gears, gear trains, planetary gear systems, power transmission

shafts, belt and chain drives, and systems such as electric and hydraulic power transmission. The transmission of power at the required speed and torque is the primary function of most power transmission systems, and is the focus of this course. Students will use this foundation to complete a case study project whereby they review and analyze how power is transmitted from the primary source to the remainder of the driveline by means such as manual transmissions, automatic transmissions, continuously variable transmissions, and direct drive systems. (Pre-Requisite: ENGR 216) CR (3,0,3)

ME 350 Heat Transfer
A basic course in the fundamentals of heat transfer by conduction, convection and radiation, together with applications to typical engineering systems. Topics include one- and two-dimensional steady state and transient heat conduction, radiation exchange between black and gray surfaces, correlation equations for laminar/turbulent internal and external convection, and an introduction to heat exchangers analysis and design by LMTD and NTU methods. (Pre-requisite: ENGR 319) CR (3,0,3)

ME 410 Kinematics & Design of Machines
Kinematics and kinetics of interconnected bodies. Principles of kinematics and force analyses of planar machinery. Analytical and numerical techniques for finding displacement, velocity and acceleration. Design of linkage, cam-follower mechanisms and gear trains. Pre-requisite: ME340) CR (3,0,3)

ME 420 Mechanical Instrumentation and Controls
Introduces the student to the study of linear control systems, their behavior and their design and use in augmenting engineering system performance.
Topics include control system behavior characterization in time and frequency domains, stability, error and design. This is accomplished through classical feedback control methods that employ the use of Laplace transforms, block diagrams, root locus, and Bode diagrams. An integrated laboratory will provide students with significant hands-on analysis and design-build-test experience. CR (3,0,3)

ME 425 Mechanical Engineering Lab (II)
This ME laboratory course introduces students to engineering measurements and experimentations. Students will conduct hands-on labs in several major topics of the Mechanics of Materials theory and Theory of Machines. Step-by-step instructions will describe all consecutive operations that the student must perform during the lab and the expected results that will be obtained. Students will learn how to analyze raw data and organize the results into comprehensive lab reports.

ME 430 Design of Thermal Systems

Analysis, management and cost, team work, optimal design, and computer simulation of thermal systems and components; Applications in fluid flow and heat transfer, pumps, turbines and heat exchangers. Selected course topics are included as computer programming projects. (Prerequisite: ME 350) CR (3,0,3)

ME 435 Design of Mechanical Systems
This is an applied course in the selection of components and integration of those components into electro-pneumatic-mechanical devices and systems. Topics involve all aspects of machine design, including drive components and systems, motion generation and control, and electrical control hardware and strategy. CR (3,0,0)

ME440 Design of Energy Systems

Installation, design characteristics, operational performance, and maintenance of motors, turbines, pumps and compressors. Introduction to global energy concerns; fossil and nuclear fuels; energy consumption analysis; energy management and conservation techniques. (Pre-requisite ME 350) CR (3,0,3)

ME 445 Hydraulic and Pneumatics Controls

This course covers theory, fundamentals, and application of hydraulic and pneumatic systems. Emphasis is placed on practical application of fundamental fluid power principles. Students will learn through hands-on lab experience, fluid power circuits, terminology, symbols, and calculations for force, velocity, and horsepower. In addition students will apply circuit fundamentals in the design of manufacturing, construction, or transportation models using software tools. Introductory control of pneumatics using PLC's (Programmable Logic Controller's) is a special feature of this course. The ability to communicate clearly in writing and possession of math skills will be considered important in this class. (Pre-requisite ME 320) CR (3,0,3)

ME 447 Engineering Analysis

Analytic models for engineering processes and systems in fluid mechanics, heat transfer, rigid body dynamics, and machine design. Practical interpretations of analytic and approximate solutions for steady and non-steady state problems. Introduction to linear algebra and statistics and their applications in engineering analyses

ME 450 CNC and Rapid Prototyping

This course teaches students the fundamentals of computer aided manufacturing (CAM), computer numerical control (CNC) machining, and rapid prototyping (RP). Students will learn how to program a CNC machine using manual G/M code programming and computer aided manufacturing software. The course also provides an overview of rapid prototyping (freeform fabrication) technologies, and students will compare part production via RP and CNC. (Pre-requisite ENGR 240) CR (3,0,3)

ME 455 Metallurgy

This course is to provide a physical basis that links the structure of materials with their properties, focusing primarily on metals. With this understanding in hand, the concepts of alloy design and microstructural engineering are also discussed, linking processing and thermodynamics to the structure and properties of metals. (Pre-requisite ENGR 215) CR (3,0,3)

ME 460 Vibrations

The theory of mechanical vibrations with an emphasis on design applications and instrumentation. Fourier analysis techniques, numerical and experimental analysis and design methods are presented in addition to theoretical concepts. Vibrations of single-degree of freedom systems are covered, including free-damped and un-damped motion; and harmonic and transient-forced motion, such as support motion, machinery unbalance and isolation. Modal analysis of multi-degree of freedom systems is introduced. In addition to laboratory exercises on vibration instrumentation, an independent design project is assigned. CR(3,0,3)

ME 465 Mechatronics

This course provides a comprehensive overview of mechatronics, including the physical system modeling and performance analysis, the integration and analysis of mechanical, electrical and hydraulic systems, varied sensors and actuators, and the concept of system, signal and control.

ME 470 Refrigeration and Air Conditioning (HVAC)
A basic course in the principles and applications of refrigeration and air conditioning involving mechanical vapor compression and absorption refrigeration cycles, associated hardware, psychometrics, heat transmission in buildings and thermodynamic design of air conditioning systems. Students are expected to do a design project. (Pre-Requisite: ME 350) CR (3,0,3)

ME 475 PLC: Modeling, simulation and response analysis of mechanical and electrical components. Modeling, simulation and analysis of mechanical and electrical systems; Analogous systems using software tools; Programmable Logic Controllers (PLC) ladder programming and input/output operations; manipulate data using PLC instruction sets. Advanced motion control programming using instruction set. Designing, configuring and interfacing graphical screens for HMI (Human Machine Interface) units.

ME 48X Undergraduate Special Topics
In response to student and/or faculty interest, special courses that are of current interest and/or logical continuation of regular courses will be presented. (Permission of the supervising faculty member and the department head required) See instructor for more details. **CR (3,0,0)**

ME 510 Dynamics of Compressible Fluids: The objective of this course is to study the basic equations of compressible flow, isentropic relationships, and normal and oblique shock waves; Prandtl-Meyer expansion, Fanno Line; applications to nozzles, diffusers. (Pre-requisite ENGR 319 **CR (3,0,3)**

ME 515 Vehicle Dynamics
Deals with the fundamentals of ground vehicle stability and control. The contribution of tire lateral force, stiffness, and aligning torque to vehicle stability is discussed. Bicycle and four-wheel vehicle models are analyzed for neutral, under and over-steering characteristics. The effects of suspension geometry, chassis stiffness and roll stiffness on stability and handling are analyzed. CR (3,0,3)

ME 520 Introduction Computational Fluid Dynamics
This course covers basic numerical techniques applicable to equations in fluid mechanics and heat transfer. Numerical methods required for programming partial differential equations are introduced. Course work involves analytical programming and design examples. This course introduces the students to some of the commercial CFD codes being used for solving thermal-fluid problems. Students complete an individual CFD study project including a written report and a presentation of the results. Pre-requisite: ENGR 318) CR(3,0,3)

ME 530 Renewable Energy
This course provides an overview of renewable energy system design. Energy resource assessment, system components, and feasibility analysis will be covered. Possible topics to be covered include photovoltaics, wind turbines, solar thermal, and hydropower. Students will be responsible for a final design project. (Pre-requisite: ME 310) CR(3,0,0)

ME 550 Nano-Materials

Introduction to the fundamentals of nanomaterial and nanotechnology. Unique mechanical, chemical, electrical, optical and magnetic properties of nanomaterials as a result of reduction in dimensionality. Synthesis methods of various nanomaterials. Nano and microfabrication techniques. Applications of nanomaterials in catalysis, electronics, optoelectronics, composite technology, environmental science, biotechnology and biomed. (Pre-requisite: ENGR 215) CR (3,0,3)

ME 560 Automation and Robotics

An applied course in the fundamentals and applications of industrial robots. Emphasis is placed on the use of microcontrollers to construct mobile robots. Topics include microcontroller programming, industrial robot fundamentals, DC servo and stepper motors, encoders, sensors, programming, gripper design, and safety. A major emphasis is placed in a design project involving the design, build, and test of a mobile robot for an application. (Pre-Requisite ME 420) CR(3,0,3)

ME 570 Finite Elements

This course emphasizes the application of the finite element method to problems in the area of static and dynamic structural analysis, heat transfer, and analogous solution. A standard commercial software package is used for these applications where the general structure, operating characteristics and use of a complex program are presented. Topics include the finite element method; shape factors, element formulation, and the element library;
program sequencing; general modeling methods (loads, constraints, material factors, mesh generation, interactive graphics, model conditioning); convergence, error analysis and the "patch" test, vibration and heat transfer analysis, and analogous analysis such as acoustics, illumination, etc. CR(3,0,3)

ME 570 Sustainable Energy Systems

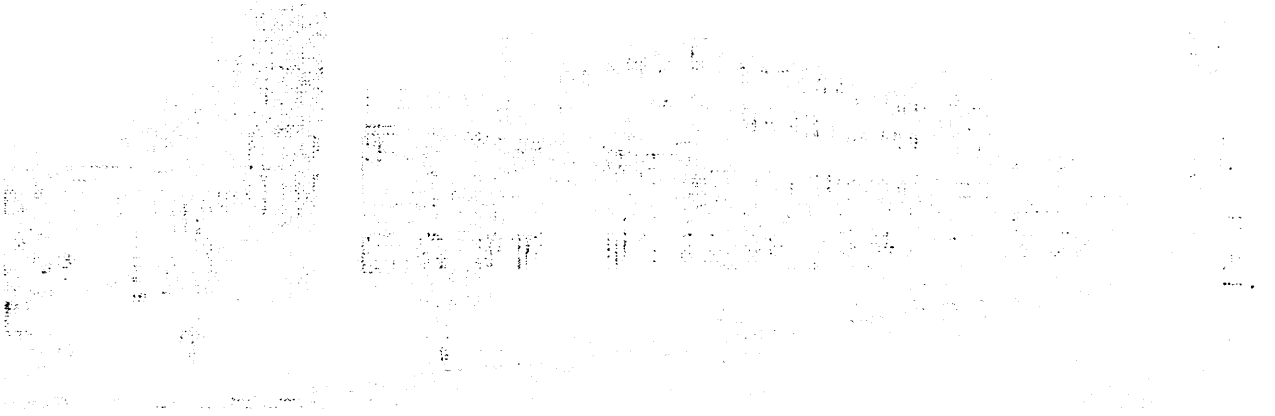
This course provides an overview of mechanical and associated control systems within buildings with an emphasis on sub-systems which possess the most visible energy signature in terms of energy usage, energy inefficiency, and societal and global impact. Fundamentals of system operation are explored as well as energy management techniques. Using domestic and international case studies which highlight energy management within the built environment, students will explore methods by which engineers have achieved solutions aligned with sustainability. (Pre-requisite: ME 310) CR (3,0,3)

Appendix E

Course Offerings by Semester

	Fall	Faculty	SCH	Spring	Faculty	SCH
I	ENGR 103	Wait	1	ENGR 102	Hijazi	2
2015-16	ENGR 103	Salem	1	ENGR 102	Hijazi	2
	ENGR 104	Hijazi	1	ENGR 102	Huffman	2
	ENGR 104	Hijazi	1	ENGR 102	Huffman	2
	ENGR 104	Hijazi	1	ENGR 240	Sadique	3
	ENGR 213	*Mechatronics*	3	ENGR 240	Sadique	3
	ENGR 213	Michaelson	3	ENGR 245	Bayisa	3
	ENGR 214	Sadique	3	ENGR 217	Chen	1
	ENGR 214	Sadique	3	ENGR 216	Michaelson	3
	ENGR 215	Hijazi	3	ENGR 219	Salem	3
	ENGR 216	Chen	3	ENGR 221	Begley	3
	ENGR 318	Wait	3	ENGR 221	Wait	3
	ENGR 319	Wait	1	ME 320	*Mechatronics*	3
	ME 310	Salem	3	ME 325	Chen	1
	ME 330	Sadique	3	ME 350	Salem	3
	ME 340	Chen	3	Tech. Elective (I)	Hijazi	3
	Total Cr. Hours (36)			Tech. Elective (II)	Chen	3
				Total Cr. Hours (43)		
II	ENGR 103	Wait	1	ENGR 102	Hijazi	2
2016-17	ENGR 103	Hijazi	1	ENGR 102	Hijazi	2
	ENGR 104	Wait	1	ENGR 102	Huffman	2
	ENGR 104	Hijazi	1	ENGR 102	Huffman	2
	ENGR 104	Hijazi	1	ENGR 240	Sadique	3
	ENGR 104	Chen	1	ENGR 240	Sadique	3
	ENGR 213	Sadique	3	ENGR 245	ME-III	3
	ENGR 214	Chen	3	ENGR 217	Begley	1
	ENGR 214	Sadique	3	ENGR 216	Michaelson	3
	ENGR 215	Hijazi	3	ENGR 219	ME-II	3
	ENGR 216	Chen	3	ENGR 221	Begley	3
	ENGR 318	Wait	3	ENGR 221	Wait	3
	ENGR 319	Wait	1	ME 320	ME-III	3
	ENGR 319	Salem	1	ME 325	ME-II	1
	ME 310	ME-II	3	ME 350	ME-II	3
	ME 330	Sadique	3	ENGR 453	Chen	3
	ME 340	ME-I	3	ME 440	Salem	3
	ME 410	ME-I	3	Design Elective	ME-I	3
	ENGR 451	Begley	3	Tech. Elective (I)	Hijazi	3
	ME 420	ME-III	3	Tech. Elective (II)	Chen	3

	ME 425	ME-I	1	Tech. Elective (III)	ME-I	3
	ENGR 452	Huffman	1	Total Cr. Hours (55)		
	Design Elective	ME-II	3			
	Tech. Elective (I)	ME-III	3			
	Tech. Elective (II)	Salem	3			
	Total Cr. Hours (55)					



Appendix F: ABET Standards

GENERAL CRITERIA FOR BACCALAUREATE LEVEL PROGRAMS

All programs seeking accreditation from the Engineering Accreditation Commission of ABET must demonstrate that they satisfy all of the following General Criteria for Baccalaureate Level Programs

General Criterion 2. Program Educational Objectives

The program must have published program educational objectives that are consistent with the mission of the institution, the needs of the program's various constituencies, and these criteria. There must be a documented, systematically utilized, and effective process, involving program constituencies, for the periodic review of these program educational objectives that ensures they remain consistent with the institutional mission, the program's constituents' needs, and these criteria

General Criterion 3. Student Outcomes

The program must have documented student outcomes that prepare graduates to attain the program educational objectives.

Student outcomes are outcomes (a) through (k) plus any additional outcomes that may be articulated by the program.

(a) an ability to apply knowledge of mathematics, science, and engineering

(b) an ability to design and conduct experiments, as well as to analyze and interpret data

(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

(d) an ability to function on multidisciplinary teams

(e) an ability to identify, formulate, and solve engineering problems

(f) an understanding of professional and ethical responsibility

(g) an ability to communicate effectively

(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

(i) a recognition of the need for, and an ability to engage in life-long learning

(j) a knowledge of contemporary issues

(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Program Criteria for Mechanical and Similarly Named Engineering Programs
Lead Society: American Society of Mechanical Engineers

These program criteria will apply to all engineering programs that include "mechanical" or similar modifiers in their titles.

1. Curriculum
The curriculum must require students to apply principles of engineering, basic science, and mathematics (including multivariate calculus and differential equations); to model, analyze, design, and realize physical systems, components or processes; and prepare students to work professionally in either thermal or mechanical systems while requiring topics in each area.

2. Faculty
The program must demonstrate that faculty members responsible for the upper-level professional program are maintaining currency in their specialty area.

APPENDIX D
FIVE-YEAR COST and FUNDING

BSME/MSME PROGRAM BUDGET PRO FORMA

FISCAL YEAR EXPENSES

	Base Salary (Year 1)	Benefits 27%	Year of Hire	Year of Prom	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
	Annual Salary Increase:		3%							
Faculty Position 0 - Chair-1/2 time Existing	$ 60,000	$16,200	-	99	$ 73,981	$ 76,200	$ 78,486	$ 80,841	$ 83,266	$ 85,764
Faculty Position 1- Asst. Professor	$ 115,000	$31,050	2	99	$ -	$ -	$ 150,432	$ 154,944	$ 159,593	$ 164,381
Faculty Position 2 -Asst. Professor	$ 115,000	$31,050	2	99	$ -	$ -	$ 150,432	$ 154,944	$ 159,593	$ 164,381
Faculty Position 3 -Asst. Prof	$ 115,000	$31,050	2	7	$ -	$ -	$ 150,432	$ 154,944	$ 159,593	$ 164,381
Faculty Position 1- Asst. Prof Existing	$ 75,000	$20,250	-	8	$ 92,476	$ 95,250	$ 98,108	$ 101,051	$ 104,082	$ 107,205
Faculty Position2 - Asst.Prof Existing	$ 77,500	$20,925	-	8	$ 95,558	$ 98,425	$ 101,378	$ 104,419	$ 107,552	$ 110,778
Faculty Position 3 - Assoc. Prof Exist	$ 85,500	$23,085	-	7	$ 105,422	$ 108,585	$ 111,843	$ 115,198	$ 118,654	$ 122,213
Equivalent Faculty Position - (BSE)	$ 87,000	$23,490	-	7	$ 107,272	$ 110,490	$ 113,805	$ 117,219	$ 120,735	$ 124,357
Faculty Position 0 - Asst Prof	$ -	$ -	2	8	$ -	$ -	$ -	$ -	$ -	$ -
Faculty Position 0- Asst Prof	$ -	$ -	3	9	$ -	$ -	$ -	$ -	$ -	$ -
Classified Employee 1	$ 75,000	$20,250	-		$ 101,723	$ 104,775	$ 107,918	$ 111,156	$ 114,490	$ 117,925
Classified Employee0	$ 25,000	$ 6,750	1		$ -	$ 34,925	$ 35,973	$ 37,052	$ 38,163	$ 39,308
Classified Employee 0	$ -	$ -	1		$ -	$ -	$ -	$ -	$ -	$ -
PERSONNEL TOTAL					$ 576,432	$ 628,650	$ 1,098,804	$ 1,131,768	$ 1,165,721	$ 1,200,693

Section Notes: Update positions, salaries, year of hire and year of promotion. Annual costs will automatically calculate. Set salary of position to zero if not needed.

PROGRAM START-UP/DEVELOPMENT										
New Program Application					$ -	$ -				
Annual Accreditation Fees						$ -	$ -	$ 1,500	$ 1,575	$ 1,654
Accreditation Comprehensive Visit						$ -		$ 12,000		
Annual Sustaining Fees						$ -	$ -	$ 1,500	$ 1,575	$ 1,654
New Program Consultation Expenses					$ -	$ -	$ -			
Travel and Profession Conferences					$ 10,000	$ 16,000	$ 23,000	$ 23,690	$ 24,401	$ 25,150
Staff Development					$ 460	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000
Recruiting Expenses					$ 35,000	$ 30,000	$ 25,000	$ 25,000	$ 20,000	$ 20,000
Professional Fees						$ 10,000	$ 10,600	$ 11,236	$ 11,910	$ 12,625
Faculty Start-Up Allowances/Relocation						$ 30,000	$ 75,000	$ 75,000	$ -	$ -
PROGRAM START-UP/DEVELOPMENT					$ 45,460	$ 87,000	$ 134,600	$ 150,926	$ 60,461	$ 62,083

Section Notes: Itemized lines are examples. Update lines and annual amounts as necessary.

ANNUAL OPERATING EXPENSES								
Office Supplies	$ 15,000	$ 15,000	$ 17,000	$ 18,000	$ 19,000	$ 20,000		
Faculty Recruitment		$ 15,000	$ 15,000	$ 5,000	$ 3,000	$ 3,000		
Adjunct & Part-Time Faculty Positions		$ 8,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000		
Equipment Maintenance		$ 20,000	$ 20,000	$ 25,000	$ 25,000	$ 25,000		
Equipment Replacement Fund (Increase in Year 5)	$ 300,000	$ 20,000	$ 20,000	$ 20,000	$ 25,000	$ 40,000		
Library Resources		$ 30,000	$ 30,000	$ 35,000	$ 40,000	$ 50,000		
Contingency		$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000		
Employee-based expenses								
Number of Employees	4	7	10	10	10	10		
Desk Cost (Phone/Network, Internet, Software,Computer Replacement) $ 900	$ 7,200	$ 12,000	$ 7,200	$ 9,000	$ 9,000	$ 9,000		
ANNUAL OPERATING EXPENSES TOTAL	**$ 315,000**	**$ 138,000**	**$ 152,000**	**$ 153,000**	**$ 162,000**	**$ 188,000**		
Section Notes: Itemized lines are examples. Update lines and annual amounts as necessary. Employee count is automatic for any employee line with a salary.								
PROGRAM OPERATING EXPENSE TOTAL	**$ 360,460**	**$ 225,000**	**$ 286,600**	**$ 303,926**	**$ 222,461**	**$ 250,083**		
TOTAL EXPENDITURE ESTIMATES	**$ 936,892**	**$ 853,650**	**$ 1,385,404**	**$ 1,435,694**	**$ 1,388,182**	**$ 1,450,775**		
REVENUE ESTIMATES								
Total students - Resident	-	79	114	135	152	155		
Total students - Nonresident	-	29	37	55	65	68		
Total E&G Fees Resident	$ -	$ 437,229	$ 662,486	$ 823,749	$ 973,854	$ 1,042,728		
Total E&G Fees Nonresident	$ -	$ 399,337	$ 534,973	$ 834,992	$ 1,036,149	$ 1,138,170		
Total Program/College Fees Resident	$ -	$ 63,200	$ 91,200	$ 108,000	$ 121,600	$ 124,000		
Total Program/College Fees Nonresident	$ -	$ 23,200	$ 29,600	$ 44,000	$ 52,000	$ 54,400		
Section Notes: Amounts above are all driven by formulae. Adjust fee and students counts below to set expected/goal amounts								
TOTAL REVENUE ESTIMATES		**$922,966**	**$1,318,259**	**$1,810,741**	**$2,183,603**	**$2,359,298**		
ANNUAL NET REVENUE		**$69,316**	**($67,145)**	**$375,046**	**$795,421**	**$908,523**		
CUMULATIVE RETURN		**$69,316**	**$2,171**	**$307,901**	**$1,170,468**	**$1,703,944**		

		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Program Fee -Res		800	800	800	800	800
Program Fee - Nonres		800	800	800	800	800
Fee Incr Res (E&G)			5.00%	5.00%	5.00%	5.00%
Fee Incr Nonres (E&G)			5.00%	5.00%	5.00%	5.00%
E&G Res	1st year	$ 5,535	$ 5,811	$ 6,102	$ 6,407	$ 6,727
E&G Nonres	1st year	$ 13,770	$ 14,459	$ 15,182	$ 15,941	$ 16,738
Total Res Students	1st year	79	115	135	152	155
Total Nonres Students	1st year	29	46	55	65	68
Total Res Students	2nd year		59	86	101	114
Total Nonres Students	2nd year		19	30	36	42
Total Res Students	3rd year		-	47	69	81
Total Nonres Students	3rd year		-	15	24	29
Total Res Students	4th year		-	-	43	62
Total Nonres Students	4th year		-	-	14	22
Retention - Resident Yr 1 to Yr 2			75%	75%	75%	75%
Retention - Nonresident Yr 1 to Yr 2			65%	65%	65%	65%
Retention - Resident Yr 2 to Yr 3			80%	80%	80%	80%
Retention - Nonresident Yr 2 to Yr 3			80%	80%	80%	80%
Retention - Resident Yr 3 to Yr 4			90%	90%	90%	90%
Retention - Nonresident Yr 3 to Yr 4			90%	90%	90%	90%

Chair: Tracy Christofero | **GC#3: Intent to Plan**

Graduate Intent to Plan--Major or Degree

NOTE: This "Intent to Plan" form must be submitted and go through the approval process BEFORE you submit the form titled, "Request for Graduate Addition, Deletion or Change of a 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. If attachments are 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: Weisberg Division of Engineering

Contact Person: Asad A Salem

Phone: 304-696-3207

New Degree Program Master's of Science In Mechanical Engineering- MSME

Effective Term/Year Fall 20 [15] Spring 20 [ ] Summer 20 [ ]

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 Asad A. Salem	Date 1/26/2015
College Curriculum Chair	Date 1/27/2015
College Dean Wael Zatar	Date 1/28/2015
Graduate Council Chair T Christofero	Date 2-13-15
Provost/VP Academic Affairs	Date
Presidential Approval	Date
Board of Governors Approval	Date

Graduate Intent to Plan--Major or Degree-Page 2

Please provide a rationale for new degree program: (May attach separate page if needed)

Please refer to the attached Document

1. ADDITIONAL RESOURCE REQUIREMENTS: If your new program requires additional faculty, equipment or specialized materials, 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.

See attached document.

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.

This is a new program. No duplication exists -Refer the attached Documents

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

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)

Refer to the the attached documents

Graduate Intent to Plan--Major or Degree-Page 4

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

Department:
New Major or Degree:
Credit Hours:
Rationale:

Department: Weisberg Division of Engineering
New Degree: Master of Science Mechanical Engineering
Credit Hours: 30-33
Rationale:
This degree will complement the Bachelor of Science in Mechanical Engineering that is being planned simultaneously. An MSME is often necessary to land certain jobs or for career advancement within certain disciplines of mechanical engineering. Many careers that require master's degrees are typically found in sectors such as research and product development. Mechanical engineers with a master's degree often benefit from higher pay and increased job responsibilities. While the technical abilities are essential, employers value Master's holders for their organization, independence, problem solving, fast learning, commitment, flexibility, leadership and communication skills.
A master's degree in mechanical engineering provides additional breadth and depth of knowledge, positioning graduates for technical leadership and specialization in industry. Candidates develop skills such as analysis, resourcefulness, ingenuity, responsibility and perseverance through research activities. These skills make employees more successful and give them greater opportunity to work on more interesting projects. In the longer term, these skills are more important than the specialty, and the better skills of Master's degree holders will serve them well. U.S. data (across all areas of engineering) show that the unemployment rate for Bachelor's degree holders is 4.5% and for Master's degree holders it is 3.0%.

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 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. 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: Business

Dept/Division: Management/Marketing/MIS

Contact Person: Dr. Margie McInerney

Phone: 304-696-2675

Rationale for Request: Expand our current MBA 3+2 program to the Human Resources and Healthcare Administration programs. This will allow business students interested in HRM or HCA to get a start on their MS degrees while completing their BBA.

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 11/4/14
Registrar Roberta Ferguson	Date 11/6/14
College Curriculum Committee Chair (or Dean if no college curriculum committee)	Date 11/11/14
Graduate Council Chair J Christofero	Date 2-13-15

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

Request for Graduate Non-Curricular Changes-Page 2

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

3 + 2 Program (B.B.A.-M.B.A.)
The 3+2 Program offered by the College of Business allows students to earn both their Bachelor of Business Administration and Master of Business Administration degrees in a total of five years. Students are allowed to double-count up to nine hours of graduate-level courses from the master's degree toward their bachelor's degree requirements. Please contact the Graduate Academic Advisor for the specific entrance requirements.

2. **Edits to 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.

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

3 + 2 Program (B.B.A.-M.B.A., HRM, or HCA)
The 3+2 Program offered by the College of Business allows students to earn both their Bachelor of Business Administration and Master of Business Administration, Human Resources Management, or Healthcare Administration degrees in a total of five years. Students are allowed to double-count up to nine hours of graduate-level courses from the master's degree toward their bachelor's degree requirements. Please contact the Graduate Academic Advisor for the specific entrance requirements.

Graduate Council
Request for Non-Curricular Changes-Page 4

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

Type of change request:
Department:
Degree program:
Effective date *(Fall/Spring/Summer, Year)*

Type of Change Request: Expanding 3+2 program
Department: College of Business Management/Marketing/MIS
Degree program: HRM and HCA
Effective date: Spring 2015

Chair: Tracy Christofero | **GC#9: Non-Curricular**

Request for Graduate Non-Curricular Changes

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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 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: COEPD

Dept/Division: Elementary & Secondary Education

Contact Person: Tina Allen

Phone: 68958

Rationale for Request

(May attach separate page if needed)

CAEP accreditation standards require colleges of education move the GPA required for admission towards 3.0. This increase from 2.7 to 2.8 is the first step in moving this direction in order to meet this requirement.

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 Gina A. Heaton	Date 11-17-14
Registrar Roberta Ferguson	Date 12/17/14
College Curriculum Committee Chair (or Dean if no college curriculum committee) Lin Bh	Date 1/14/15
Graduate Council Chair JChristofero	Date 2-13-15

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

Request for Graduate Non-Curricular Changes-Page 2

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

see attached

apply-for-admission Please note that all admissions documents must be submitted to Graduate Admissions before an applicant will be considered for admission.

2. In addition to university admission requirements, applicants must have an overall Grade Point Average (GPA) of 2.70 or higher on a 4.0 scale for all previously completed coursework and a GPA of 2.70 in the content area, must meet the Praxis Core requirement, and must submit Graduate Record (GRE) or Miller Analogies Test (MAT) scores with a required minimum total score of 286 on the GRE verbal and quantitative sections (or the equivalent on the GRE prior to Fall 2011), or a minimum score of 387 on the MAT.
3. An applicant may qualify for an exemption of the Praxis Core if he or she has an enhanced ACT score of 26 or higher, a revised SAT score of 1170 or higher, or a master's degree or higher.
4. Applicants must take and pass all three subtests (reading, writing and math) of the Praxis Core prior to being admitted to the MAT program. The required Praxis Core scores are Reading = 156, Writing =162, and Math = 150.
5. Students may enroll in graduate courses only after they have been fully admitted to the university and the MAT program. All students must maintain a cumulative Grade Point Average of 3.0.
6. A Plan of Study approved by the student's advisor must be submitted for approval to the Graduate College Dean before the student registers for his or her 12th semester hour. The Plan of Study is a student's "blueprint" for completing graduation requirements.
7. In the last semester of the program, students will be enrolled in EDF 677, MAT Level III Clinical Experience, a 15 week, full-time student teaching experience under the direct supervision of a certified teacher(s). Prerequisites for student teaching include the following: 3.0 GPA in all graduate MAT courses; completion of at least 90% of content courses (100% recommended); completion of EDF 537 and EDF 637, Level I and II Clinical Experiences; completion of all MAT coursework and the Praxis content test(s)
8. Before a candidate may apply for certification/licensure, he or she must take and pass the Praxis, Principles of Learning and Teaching (PLT) Grades 7-12. The PLT may be taken during or following the final semester in the MAT program.
9. Upon completion of the MAT program and all testing requirements, the student should apply for licensure. The teaching license is awarded by the West Virginia Department of Education; however, the candidate must be recommended for licensure by the institution.

Program Options and Degree Requirements: Master of Arts in Teaching

1. Master of Arts in Teaching - Grades PreK-Adult
   - Art Education
   - Music Education
   - Wellness

Foundations of Education and Technology ..... 15 Hours

Research and Writing (3 hrs.)

EDF 621 Educational Research and Writing OR
EDF 625 Qualitative Research in Education

Social and Cultural Foundations (3 hrs.)

EDF 665 Sociology of American Schools OR
EDF 615 History of Education in the United States

Development or Psychology (3 hrs.)

EDF 616 Advanced Studies in Human Development OR
EDF 619, Educational Psychology
EDF 537 Clinical I - Lab to accompany EDF 616 or EDF 619

Instructional Technology (3 hrs.)

CIEC 534 Applications Software in the Classroom Curriculum Area OR
CIEC 600 Instructional Design and Technology OR
CIEC 635 Using the Internet in the Classroom

Evaluation or Assessment (3 hrs.)

EDF 612 Educational Evaluation
EDF 636 Classroom Assessment

Curriculum and Instruction ..... 24 Hours

CI 503 Methods and Materials of Teaching in the Middle Childhood Grades
CISP 510 Intro. to Instructional Practices/Exceptional Children

(continued)

Post-Baccalaureate Teacher Certificate Program

In West Virginia the license to teach is granted by the West Virginia Department of Education and is typically issued upon the completion of a four-year undergraduate program of study that included content and professional education courses. The Post-Baccalaureate Teacher Certificate (PBC) program offers an accelerated route to teacher certification for persons who already have undergraduate degrees in content areas such as chemistry, music, French, and other liberal and fine arts, or professional fields. Using the previously completed content courses as a foundation, this program provides the required professional education courses at the graduate level. Additional undergraduate classes may be needed in the content area.

Upon successful completion of the PBC program, all content courses, and testing requirements, the candidate earns a recommendation to the West Virginia Department of Education for a teaching certificate at the secondary level and is eligible to apply for a certificate from the university. The PBC does not include Elementary Education or Special Education certification.

Admission to PBC and Licensure Requirements

1. Candidates must request a transcript analysis through a certification officer either in Huntington or South Charleston. An unofficial copy of the transcript may be used for the analysis. The analysis will identify the courses that can be used to meet content licensure requirements and the list of additional courses needed. Candidates must have at least 90% of the required content courses.
2. Candidates deciding to apply to the program after reviewing the transcript analysis should follow the admissions process described in this catalog or at the Graduate Admissions website at *www.marshall.edu/graduate/admissions/how-to-apply-for-admission* Students should apply as Certificate/Professional Development students and select the Post-Baccalaureate Teacher Certificate on the admissions form. Please note that all admissions documents must be submitted to Graduate Admissions before an applicant will be considered for admission.
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9. Upon completion of the PBC program and all testing requirements, the student should apply for licensure. The teaching license is awarded by the West Virginia Department of Education; however, the candidate must be recommended for licensure by the institution

Program Requirements

Foundations of Education ..... 6 hours

- EDF 616 Advanced Studies in Human Development OR
- EDF 619, Educational Psychology
- EDF 537 Clinical I - Lab to accompany EDF 616 or EDF 619
- EDF 612 Educational Evaluation OR
- EDF 636 Classroom Assessment

Curriculum and Instruction ..... 12 Hours

- CISP 510 Intro. to Instructional Practices/Exceptional Children
- CISP 521 Children with Exceptionalities
- CIRG 644 Literacy in the Content Area
- CI 515 Integrated Methods and Materials
- EDF 637 Clinical II - Lab to accompany CI 515

Request for Graduate Non-Curricular Changes-Page 3

2. **Edits to 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.

apply-for-admission Please note that all admissions documents must be submitted to Graduate Admissions before an applicant will be considered for admission.

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   - Wellness

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Social and Cultural Foundations (3 hrs.)

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EDF 537 Clinical I - Lab to accompany EDF 616 or EDF 619

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CIEC 534 Applications Software in the Classroom Curriculum Area OR
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CIEC 635 Using the Internet in the Classroom

Evaluation or Assessment (3 hrs.)

EDF 612 Educational Evaluation
EDF 636 Classroom Assessment

Curriculum and Instruction ..... 24 Hours

CI 503 Methods and Materials of Teaching in the Middle Childhood Grades
CISP 510 Intro. to Instructional Practices/Exceptional Children

(continued)

Post-Baccalaureate Teacher Certificate Program

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Graduate Council
Request for Non-Curricular Changes-Page 4

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(continued)

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6. Students may enroll in graduate courses only after they have been fully admitted to the PBC program. All students must maintain a cumulative Grade Point Average of 3.0.
7. In the last semester of the program students will be enrolled in EDF 677, MAT Level III Clinical Experience, a 15 week, full-time student teaching experience under the direct supervision of a certified teacher(s). Prerequisites for student teaching include the following: 3.0 GPA in all graduate PBC courses; completion of at least 90% of content courses (100% recommended); completion of EDF 537 and EDF 637, Level I and II Clinical Experiences; completion of all PBC coursework and the Praxis content test(s).
8. Before a candidate may apply for certification/licensure, he or she must take and pass the Praxis Principles of Learning and Teaching (PLT) Grades 7-12. The PLT may be taken during or following the final semester in the PBC program.
9. Upon completion of the PBC program and all testing requirements, the student should apply for licensure. The teaching license is awarded by the West Virginia Department of Education; however, the candidate must be recommended for licensure by the institution

Program Requirements

Foundations of Education ..... 6 hours

- EDF 616 Advanced Studies in Human Development OR
- EDF 619, Educational Psychology
- EDF 537 Clinical I - Lab to accompany EDF 616 or EDF 619
- EDF 612 Educational Evaluation OR
- EDF 636 Classroom Assessment

Curriculum and Instruction ..... 12 Hours

- CISP 510 Intro. to Instructional Practices/Exceptional Children
- CISP 521 Children with Exceptionalities
- CIRG 644 Literacy in the Content Area
- CI 515 Integrated Methods and Materials
- EDF 637 Clinical II - Lab to accompany CI 515

Graduate Council
Request for Non-Curricular Changes-Page 5

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

Type of change request:
Department:
Degree program:
Effective date *(Fall/Spring/Summer, Year)*

Type of change request: catalog change/admission requirement change
Department: Elementary and Secondary Education
Degree program: Masters of Arts in Teaching and Post Baccalaureate Teacher Certificate Program
Effective date: Spring 2015

Chair: Tracy Christofero | **GC#9: Non-Curricular**

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 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 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: COEPD

Dept/Division: Leadership Studies

Contact Person: Dr. Mike Cunningham DENNIS ANDERSON

Phone: 6-1912

Rationale for Request (May attach separate page if needed)

to clarify the purpose of LS 580-Special Topics

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 12-9-14
Registrar	Date 12/17/14
College Curriculum Committee Chair (or Dean if no college curriculum committee)	Date 1/14/15
Graduate Council Chair	Date 2-13-15

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

Request for Graduate Non-Curricular Changes-Page 2

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

To provide the master's level student an opportunity to examine selected issues in leadership and to apply their findings to the field of study.

Request for Graduate Non-Curricular Changes-Page 3

2. **Edits to 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.

Graduate Council
Request for Non-Curricular Changes-Page 4

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. (May attach separate page if needed)

To provide faculty an opportunity to pilot a new course on a trial basis.

Graduate Council
Request for Non-Curricular Changes-Page 5

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

Type of change request:
Department:
Degree program:
Effective date *(Fall/Spring/Summer, Year)*

Type of change request: Catalog description
Department: Leadership Studies
Degree program: MA
Effective date: Summer, 2015

585-588 **Independent Study. 1-4; 1-4; 1-4; 1-4 hrs.**

625 **History and Development of the Latin Language. 3 hrs.**
This course examines the linguistic, geographic, cultural and material concerns that influenced the development of the Latin language.

640 **Advanced Prose Composition. 3 hrs.**
A close study of advanced Latin grammar and style through composition in Latin.

660-665 **Special Author in Latin Literature. 3 hrs.**
A detailed study of Latin of a single author. Special attention will be given to style, genre, literacy and cultural contexts, and study of secondary sources on the author.

681 **Thesis. 1- 6 hrs.**
Students will develop an extensive body of knowledge on a particular topic, author, or issue. This knowledge will cover primary and secondary sources, and secondary sources will include current theoretical approaches. Students will synthesize this knowledge ina comprehensive paper, the development of which will include drafting, revision, redrafting, final copy and presentation. Students will work with a thesis director and a committee throughout the process. (PR: Instructor Permission)

682-683 **Special Topics in Latin Literature. 1-4 hrs.**
These courses are designed to provide instruction to students in Latin authors or topics that are not part of the regular curriculum. (PR: Instructor Permission)

685-688 **Independent Study in Latin Literature. 1-4 hrs.**
These courses are designed to provide instruction to students in Latin authors or topics that are not part of our regular curriculum. (PR: Instructor Permission)

LEADERSHIP STUDIES (LS)

500 **Introduction to School Leadership. 3 hrs.**
Examination of fundamental purposes, functions, and structure of public schools.

510 **The Principalship. 3 hrs.**
The Principalship is a study of school management as it relates to ethical behavior, and to support services, information systems, fiscal matters, and facility utilization and maintenance.

515 **Instructional Leadership. 3 hrs.**
This course is designed to develop skills in instructional leadership, including instructional supervision, instructional strategies, program development, instructional evaluation, and human relations.

520 **Administration of Elementary, Middle and Secondary Schools. 3 hrs.**
This course addresses the concerns of the school leader, including instruction, learning, communication, discipline, parental involvement, instructional organization, climate, facilities, professional development, and personnel practices. Emphasis is placed on the physical, social/emotional, and cognitive/intellectual characteristics of children and the implications for developmentally appropriate school administration.

530 **Human Relations. 3 hrs.**
This course assesses and develops students' knowledge and skills in interpersonal relations and ethical practices. It provides structured experiences in group processes, verbal and non-verbal communications, leadership styles, and team building.

532 **Human Relations in the Public Sector. 3 hrs.**
This course is designed to help prospective leaders in the public sector establish and maintain positive interpersonal relationships with their constituents.

535 **Technology and the Classroom. 3 hrs.**
This course is designed to examine the effects of technology, both pedagogical and practical, on the educational process.

550 **Schools as Systems. 3 hrs.**
This course assesses and develops students' knowledge and skills in change strategies, school cultures, systems theory, and understanding of the school in relation to other systems, agencies and organizations.

561-563 **Professional Development. 1-4 hrs.**
These courses and activities are designed to meet the specific in-service needs of public school administrators. Credit in these courses may be used for certificate renewal and salary upgrading but not in degree programs.

580 **Special Topics in Leadership. 1-9 hrs.**
To provide the master's level student an opportunity to examine selected issues in leadership and to apply their findings to the field of study.

585-588 **Independent Study 1-4 hrs.**
By arrangement only.

600 **School Personnel Administration 3 hrs.**
This course offers an examination of personnel functions including recruitment, selection, orientation, evaluation, and retention with particular emphasis on staff development.

606 **Planning, Research and Evaluation for School Leaders. 3 hrs.**
This course is designed to avail potential school administrators with an understanding of planning strategies, academic research, action research, and program evaluation methods, with the intent of their being able to write a cogent, data-based school improvement plan.

610 **Leadership for School Improvement. 3 hrs.**
Leadership preparation for developing and implementing a shared vision and strategic plans focused on teaching and learning, implementing change, applying leadership theory and acting with understanding of society's influences.

612 **Education Technology for Administrators. 3 hrs.**
This course provides the requisite knowledge and skill for effective use of educational technology in instruction leadership including leadership and vision; learning and teaching; productivity and professional practice; support, management and operations; assessment and evaluation; and social, legal, and ethical issues.

615 **Leadership in the Public Sector. 3 hrs.**
This course will enable potential leaders in the public sector to define and evaluate personal and organizational goals and to develop strategies to achieve shared goals.

616 **Governance of Higher Education. 3 hrs.**
This course is designed to develop an understanding of the structure of governance of multi-campus public higher education systems.

617 **Student Affairs Administration in Higher Education. 3 hrs.**
This course surveys the purpose and functions of student personnel administration in higher educational institutions
procedures developed to accomplish these purposes.

618 **History of American Higher Education. 3 hrs.**

Chair: Tracy Christofero | **GC#9: Non-Curricular**

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 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 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: COHP

Dept/Division: School of Kinesiology

Contact Person: Joseph A. Beckett, EdD, ATC

Phone: 304-696-2929

Rationale for Request (May attach separate page if needed)	1) To clarify all program admission criteria 2) To clarify and expand the prerequisites for admission to the ELM-AT

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 [signature]	Date 10/20/14
Registrar [signature]	Date 10/22/14
College Curriculum Committee Chair [signature] (or Dean if no college curriculum committee)	Date 10/23/14
Graduate Council Chair [signature]	Date 2-13-15

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

Request for Graduate Non-Curricular Changes-Page 2

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

Please refer to attached pages

Entry-Level Masters of Science - Athletic Training

The Marshall University Athletic Training Program (ATP) is fully accredited by the CAATE (Commission on Accreditation of Athletic Training Education; www.caate.net). It is a rigorous academic program that includes course work in athletic training, anatomy, physiology, exercise physiology, psychology, and other science related courses. The multifaceted program blends classroom instruction with clinical rotations where students obtain real life experience working hands-on with certified athletic trainers, physicians, physical therapists, and other allied health care professionals to provide patient care. The rigorous curriculum prepares students to take the national BOC board exam (Board of Certification Exam; www.bocatc.org) to practice as entry-level professionals. This program is NOT an Advanced Practice Masters available to students who are already eligible for BOC certification. A degree in Athletic Training and BOC certification offer graduates opportunities to practice in a variety of settings. These settings include, but are not limited to, high school, college and professional athletics, outpatient clinics, industrial rehabilitation sites, physician practices, the performing arts, safety settings, and higher education.

The ELM in AT is a 3-2 program, allowing current Marshall University students to apply after their 3rd year of undergraduate studies and graduate two years later (5 years total) with both bachelors and masters degrees. Additionally, students who hold a bachelors degree from either Marshall or another accredited institution can also apply and complete the two-year professional masters. Both routes prepare students to take the national BOC board exam. Acceptance into the ATP is competitive and separate from acceptance to Marshall University.

Admission Criteria

Acceptance into the Athletic Training Program is competitive and not guaranteed. Prospective students must meet the minimum criteria listed below to be considered for admission to the program:

- Admission to Marshall University;
- An overall cumulative minimum GPA of 2.70;
- A C or better on all pre-requisite coursework
- Apply to the Athletic Training Program (due February 15)
- 50 observation hours with a BOC-certified Athletic Trainer
- Successful interview (Interviews are extended in March)
- Ability to meet the Technical Standards of Admission documented by a licensed physician

Prerequisites – Provisional Admission Criteria

Prospective students must have taken or be currently enrolled in the following courses when applying to the Athletic Training program:

- All students applying in their 3rd year from Marshall University must have all Core I, Core II, and a minimum of 90 credit hours completed by the end of the application semester
- Anatomy and physiology (6-8cr)

- Exercise physiology (3-4cr)
- First Aid; must also hold current CPR-AED certification (1-3cr)
- Fitness assessment, exercise prescription, or strength and conditioning (3cr)
- General psychology (3cr)
- Introduction to health science, exercise science, athletic training or similar (3cr)
- Kinesiology or biomechanics (3-4cr)
- Nutrition (3cr)
- Personal health or fitness (1-3cr)
- Statistical methods (3cr)

Athletic Training Core

- HS 609, Organization and Administration in Athletic Training
- HS 512, Practical and Emergency Techniques in Athletic Training
- HS 515, Athletic Training Clinical Experience I
- HS 522, Orthopedic Skills and Procedures
- HS 523, Orthopedic Assessment of the Upper Extremity for Athletic Trainers
- HS 524, Orthopedic Assessment of the Lower Extremity for Athletic Trainers
- HS 525, Athletic Training Clinical Experience II
- HS 634, Athletic Training Externship
- HS 639, Health Assessment for the Athletic Trainer
- HS 645, Athletic Training Clinical Experience III
- HS 548, Therapeutic Modalities in Athletic Training
- HS 549, Therapeutic Exercise in Athletic Training
- HS 655, Athletic Training Clinical Experience IV (Capstone)
- HS 679, Trends in Athletic Training
- ESS 636, Structural Kinesiology
- ESS 642, Advanced Training and Conditioning
- HS/ESS Elective (3cr at 600 level)

Additional Requirements

- BOC Exam registration
- 3.0 overall GPA and B or better on all required coursework
- Completion of HS 655 with a B or better

Request for Graduate Non-Curricular Changes-Page 3

2. **Edits to 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.

Entry-Level Masters of Science - Athletic Training

The Marshall University Athletic Training Program (ATP) is fully accredited by the CAATE (Commission on Accreditation of Athletic Training Education; www.caate.net). It is a rigorous academic program that includes course work in athletic training, anatomy, physiology, exercise physiology, psychology, and other science related courses. The multifaceted program blends classroom instruction with clinical rotations where students obtain real life experience working hands-on with certified athletic trainers, physicians, physical therapists, and other allied health care professionals to provide patient care. The rigorous curriculum prepares students to take the national BOC board exam (Board of Certification Exam; www.bocatc.org) to practice as entry-level professionals. This program is NOT an Advanced Practice Masters available to students who are already eligible for BOC certification or currently certified by the BOC. A degree in Athletic Training and BOC certification offer graduates opportunities to practice in a variety of clinical settings. These settings include, but are not limited to, high school, college and professional athletics, outpatient clinics, industrial rehabilitation sites, physician practices, the performing arts, safety settings, and higher education.

The ~~ELM-~~ELM-AT~~in-AT~~ is a 3-2 program, allowing current Marshall University students to apply after their 3rd year of undergraduate studies and graduate two years later (5 years total) with both bachelors and masters degrees. Additionally, students who hold a bachelor's degree from either Marshall or another accredited institution can also apply and complete the two-year ~~professional masters~~ Entry-Level Masters of Science in Athletic Training program. Both routes prepare students to take the national BOC board exam. Acceptance into the ~~ATP~~ ELM-AT is competitive and separate from acceptance to Marshall University.

Admission Criteria

Acceptance into the ~~Athletic Training Program~~ Entry-Level Masters of Science in Athletic Training Program is competitive and not guaranteed. Prospective students must meet the minimum criteria listed below to be considered for admission to the program:

- Admission to Marshall University;
- An overall cumulative minimum GPA of 2.70;
- A letter grade of "C" ~~C~~ or better on all pre-requisite coursework
- ~~Apply to the Athletic Training Program (due February 15)~~ Submit by February 15 all forms and supporting documentation to apply to the ELM-AT (NOTE: refer to the current edition of the Athletic Training Program Policies and Procedures Manual for information regarding the application and admission requirements)
- ~~50 observation hours with a BOC-certified Athletic Trainer~~ Directed observation clinical experience (NOTE: refer to the current edition of the ATP Policies and Procedures Manual for details regarding the requirements of this DO clinical experience)
- Successful interview (Interviews are extended in March)
- Ability to meet the Technical Standards of Admission documented by a licensed physician

Prerequisites – Provisional Admission Criteria

Prospective students must have taken or be currently enrolled in the following courses when applying to the ~~Athletic Training program~~ ELM-AT program:

~~-~~All students applying in their 3rd year from Marshall University must have all Core I, Core II, and a minimum of 90 credit hours completed by the end of the application semester including the below pre-requisite courses:

- Anatomy and physiology (6-8cr)
- Introduction to Athletic Training/Prevention & Care of Athletic Injuries (3cr)
- Exercise physiology (3-4cr)
- First Aid and CPR; must also hold current First Aid and CPR ~~AED~~ healthcare provider or professional rescuer certifications (1-3cr)
- ~~Fitness assessment, exercise prescription, or strength and conditioning (3cr)~~
- General psychology (3cr)
- ~~Introduction to health science, exercise science, athletic training or similar (3cr)~~
- Kinesiology or biomechanics (3-4cr)
- Nutrition (3cr)
- Personal ~~H~~health/Wellness ~~or fitness (~~1~~2-3cr)
- Statistical methods (3cr)
- Medical terminology (2-3cr)

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Athletic Training Core

- ~~HS 609, Organization and Administration in Athletic Training~~
- HS 512, ~~Practical and Emergency Techniques~~ Foundational Clinical Skills in Athletic Training (3cr)
- HS 515, Athletic Training Clinical Experience I (1cr)
- ~~HS 522, Orthopedic Skills and Procedures~~
- HS 523, Orthopedic Assessment of the Upper Extremity for Athletic Trainers (4cr)
- HS 524, Orthopedic Assessment of the Lower Extremity for Athletic Trainers (4cr)
- HS 525, Athletic Training Clinical Experience II (2cr)
- ~~HS 634, Athletic Training Externship~~
- ~~HS 639, Health Assessment for the Athletic Trainer~~

- ~~HS 645, Athletic Training Clinical Experience III~~
- HS 548, Therapeutic ~~Modalities~~ Interventions I in Athletic Training (4cr)
- HS 549, Therapeutic ~~Exercise~~ Interventions II in Athletic Training (4cr)
- ~~HS 655, Athletic Training Clinical Experience IV (Capstone)~~
- HS 609, Organization and Administration in Athletic Training (3cr)
- HS 630, Seminar in Athletic Training (3cr)
- HS 634, Athletic Training Externship (3cr)
- HS 639, Examination of General Medical Conditions (3cr)
- HS 645, Athletic Training Clinical Experience III (3cr)
- HS 655, Athletic Training Clinical Experience IV (3cr)
- HS 679, Trends in Athletic Training
- HS 681, Graduate Project in Athletic Training (3cr)
- ESS 671, Research Methods (3cr)

Students choose two courses (6 hours) from the below list of courses:

- HS 566, Biomechanical Analysis (3cr)
- ESS 636, Structural Kinesiology (3cr)
- ESS 642, Advanced Training and Conditioning (3cr)
- HS/ESS Elective (3cr at 600 level)

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Additional Requirements

- BOC Exam registration
- 3.0 overall GPA and B or better on all required coursework
- Completion of ~~HS 655~~ all Athletic Training Clinical Experience courses with a letter grade of "B" ~~B~~ or better

Graduate Council
Request for Non-Curricular Changes-Page 4

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. (May attach separate page if needed)

Please refer to attached pages

Entry-Level Masters of Science - Athletic Training

The Marshall University Athletic Training Program (ATP) is fully accredited by the CAATE (Commission on Accreditation of Athletic Training Education; www.caate.net). It is a rigorous academic program that includes course work in athletic training, anatomy, physiology, exercise physiology, psychology, and other science related courses. The multifaceted program blends classroom instruction with clinical rotations where students obtain real life experience working hands-on with certified athletic trainers, physicians, physical therapists, and other allied health care professionals to provide patient care. The rigorous curriculum prepares students to take the national BOC board exam (Board of Certification Exam; www.bocatc.org) to practice as entry-level professionals. This program is NOT an Advanced Practice Masters available to students who are already eligible for BOC certification or currently certified by the BOC. A degree in Athletic Training and BOC certification offer graduates opportunities to practice in a variety of clinical settings. These settings include, but are not limited to, high school, college and professional athletics, outpatient clinics, industrial rehabilitation sites, physician practices, the performing arts, safety settings, and higher education.

The ELM-AT is a 3-2 program, allowing current Marshall University students to apply after their 3rd year of undergraduate studies and graduate two years later (5 years total) with both bachelors and masters degrees. Additionally, students who hold a bachelor's degree from either Marshall or another accredited institution can also apply and complete the two-year Entry-Level Masters of Science in Athletic Training program. Both routes prepare students to take the national BOC board exam. Acceptance into the ELM-AT is competitive and separate from acceptance to Marshall University.

Admission Criteria

Acceptance into the Entry-Level Masters of Science in Athletic Training Program is competitive and not guaranteed. Prospective students must meet the minimum criteria listed below to be considered for admission to the program:

- Admission to Marshall University;
- An overall cumulative minimum GPA of 2.70;
- A letter grade of "C" or better on all pre-requisite coursework
- Submit by February 15 all forms and supporting documentation to apply to the ELM-AT (NOTE: refer to the current edition of the Athletic Training Program Policies and Procedures Manual for information regarding the application and admission requirements)
- Directed observation clinical experience (NOTE: refer to the current edition of the ATP Policies and Procedures Manual for details regarding the requirements of this DO clinical experience)
- Successful interview (Interviews are extended in March)
- Ability to meet the Technical Standards of Admission documented by a licensed physician

Prerequisites – Provisional Admission Criteria

Prospective students must have taken or be currently enrolled in the following courses when applying to the ELM-AT program:

All students applying in their 3rd year from Marshall University must have all Core I, Core II, and a minimum of 90 credit hours completed by the end of the application semester including the below pre-requisite courses:

- Anatomy and physiology (6-8cr)
- Introduction to Athletic Training/Prevention & Care of Athletic Injuries (3cr)
- Exercise physiology (3-4cr)
- First Aid and CPR; must also hold current First Aid and CPR healthcare provider or professional rescuer certifications (1-3cr)
- General psychology (3cr)
- Introduction to health science, exercise science, athletic training or similar (3cr)
- Kinesiology or biomechanics (3-4cr)
- Nutrition (3cr)
- Personal Health/Wellness (2-3cr)
- Statistical methods (3cr)
- Medical terminology (2-3cr)

Athletic Training Core

- HS 512, Foundational Clinical Skills in Athletic Training (3cr)
- HS 515, Athletic Training Clinical Experience I (1cr)
- HS 523, Orthopedic Assessment of the Upper Extremity for Athletic Trainers (4cr)
- HS 524, Orthopedic Assessment of the Lower Extremity for Athletic Trainers (4cr)
- HS 525, Athletic Training Clinical Experience II (2cr)
- HS 548, Therapeutic Interventions I in Athletic Training (4cr)
- HS 549, Therapeutic Interventions II in Athletic Training (4cr)
- HS 609, Organization and Administration in Athletic Training (3cr)
- HS 630, Seminar in Athletic Training (3cr)
- HS 634, Athletic Training Externship (3cr)

- HS 639, Examination of General Medical Conditions (3cr)
- HS 645, Athletic Training Clinical Experience III (3cr)
- HS 655, Athletic Training Clinical Experience IV (3cr)
- HS 679, Trends in Athletic Training
- HS 681, Graduate Project in Athletic Training (3cr)
- ESS 671, Research Methods (3cr)

Students choose two courses (6 hours) from the below list of courses:

- HS 566, Biomechanical Analysis (3cr)
- ESS 636, Structural Kinesiology (3cr)
- ESS 642, Advanced Training and Conditioning (3cr)
- HS/ESS Elective (3cr at 600 level)

Additional Requirements

- BOC Exam registration
- 3.0 overall GPA and B or better on all required coursework
- Completion of all Athletic Training Clinical Experience courses with a letter grade of "B" or better

Graduate Council
Request for Non-Curricular Changes-Page 5

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

Type of change request:
Department:
Degree program:
Effective date *(Fall/Spring/Summer, Year)*

Type of change request: Change of Admission Criteria and Prerequisites Criteria
Department: School of Kinesiology
Degree program: Entry Level Masters of Science in Athletic Training
Effective date: Fall 2015

Chair: Tracy Christofero | **GC#6: Course Addition**

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: Computer Science | Alpha Designator/Number: CS 512 | (●) Graded ( ) CR/NC

Contact Person: Dr. Venkat Gudivada | Phone: 304 - 696 - 5452

NEW COURSE DATA:

New Course Title: Embedded Systems

Alpha Designator/Number: CS 512

Title Abbreviation: Embedded Systems

(Limit of 25 characters and spaces)

Course Catalog Description: (Limit of 30 words)

The design of systems containing embedded computers. Micro-controller technology, assembly language and C programming, input/output interfacing, data acquisition hardware, interrupts, and timing. Real-time operating systems and application programming. Application examples.

Co-requisite(s): None | First Term to be Offered: Spring 2015

Prerequisite(s): CS 502 | Credit Hours: 3

Course(s) being deleted in place of this addition (*must submit course deletion form*): None

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

Dept. Chair/Division Head VN Gudivada	Date 30 Sept 2014
Registrar Roberta Ferguson 110101	Date 10/1/14
College Curriculum Chair	Date 10/31/14
Graduate Council Chair Christofero	Date 2-13-15

Request for Graduate Course Addition - Page 2

College: CITE | Department/Division: Computer Science | Alpha Designator/Number: CS 512

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.

Dr. Venkat Gudivada, Jonathan Thompson, Dr. Paulus Wahjudi

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.

The existing 21 kits consisting of the ChipKIT circuit board and accessories. No additional resources are required.

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

See attached syllabus

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

See attached syllabus

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

See attached syllabus

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

Lecture, lab, design and simulation/programming problems.

Request for Graduate Course Addition - Page 4

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

Term paper, design/simulation/programming problems, midterm exam, final exam.

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

Graduate students will spend more effort on a research-oriented term paper. Furthermore, graduate students will complete more substantial design/simulation/programming problems.

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

See 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: Weisberg Division of Computer Science

Course Number and Title: CS 512: Embedded Systems

Catalog Description: The design of systems containing embedded computers. Micro-controller technology, assembly language and C programming, input/output interfacing, data acquisition hardware, interrupts, and timing. Real-time operating systems and application programming. Application examples.

Prerequisites: CS 502

First Term Offered: Spring 2015

Credit Hours: 3.0

Marshall University Syllabus

Course Title/Number	Embedded Systems/ CS 512
Semester/Year	Spring/2015
Days/Time	Monday, Wednesday/2:00 - 3:30
Location	Gullickson Hall Room 211
Instructor	Jonathan Thompson
Office	GH205C
Phone	304-696-6349
E-Mail	thompsonj@marshall.edu
Office/Hours	MWF 11:00 - 1:00
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 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 design of systems containing embedded computers. Micro-controller technology, assembly language and C programming, input/output interfacing, data acquisition hardware, interrupts, and timing. Real-time operating systems and application programming. Application examples. PR: CS502

Course Student Learning Outcomes

The table below shows the following relationships: How each student learning outcomes will be practiced and assessed in the course.

Course Student Learning Outcomes	How **students will practice** each outcome	How **student achievement of each outcome will be assessed** in this course
Students will be able to critically analyze and evaluate an embedded system design and implementation	In-class exercises, guided group discussions	Research oriented term paper
Students will be able to describe the principles of Embedded Systems and the tradeoffs which guide the hardware-software partitioning of any design	In-class exercises, guided group discussions, low-stakes homework assignments	Programming assignments, design projects, and exams
Students will be able to design and implement computer hardware and software for real-time embedded systems	In-class exercises, guided group discussions, low-stakes homework assignments	Programming assignments, design projects, and exams

Required Texts, Additional Reading, and Other Materials

Required Text

Marilyn Wolfe. *Computers as Components, 3rd Ed.* Morgan Kaufmann, 2012, ISBN 9780123884367

Additional Reading

None

Other Materials

STM32F407VG MCU Discovery Kit Tools http://www.st.com/web/catalog/tools/PF252419

Course Requirements / Due Dates

- Midterm exam: 25-Feb-15
- Term paper due: 27-Apr-15
- Final exam: 04-May-15 from 12:45 - 2:45

Graduate Level Requirements

CS512 includes additional assignments and a term paper that are not expected of students enrolled in CS412.

Grading Policy

Activity	Weight
Design/simulation/programming problems	10%
Design projects	20%
Term paper	20%
Midterm exam	20%
Final Exam	30%

The course grade is awarded based on the following scheme:

Score	Letter Grade
≥ 90	A
≥ 80 & < 90	B
≥ 70 & < 80	C
≥ 60 & < 70	D
< 60	F

Attendance Policy

Attendance will be taken at the start of class. Only university excused absences will be accepted.

Course Schedule

Weeks 1-2	Embedded computing Instruction Sets
Week 3 - 4	ARM Processor Instruction Set CPUs
Week 5 - 6	Computing Platforms Program Design
Week 7 - 8	Program Analysis Midterm exam
Week 9 - 10	Real-Time Operating Systems Power Optimization Strategies
Week 11 - 12	Requirements Analysis and Specifications System Analysis and Architecture Design
Week 13 - 14	Multiprocessors Networks and Distributed Systems
Exam Week	Final exam

Bibilography

[1] Peter J. Ashenden. *Digital Design (Verilog): An Embedded Systems Approach Using Verilog.* Morgan Kaufmann, 2008

[2] Barr and Massa. *Programming Embedded Systems, 2nd Ed.* O'ReillyMedia, 2006.

[3] Moshe (Maury) Bach et al. "Analyzing Parallel Programs with Pin". In: Computer 43 (2010), pp. 34–41.

[4] Jean-Loup Baer. *Microprocessor Architecture: From Simple Pipelines to Chip Multiprocessors.* Cambridge University Press, 2010.

[5] Kevin J. Barker et al. "Using Performance Modeling to Design Large-Scale Systems". In: Computer 42 (2009), pp. 42–49.

[6] Peter Barry and Patrick Crowley. *Modern Embedded Computing.* Morgan Kaufmann, 2012.

[7] Randal E. Bryant and David R. O'Hallaron. *Computer Systems: A Programmer's Perspective.* Addison-Wesley, 2010.

[8] Roger D. Chamberlain et al. "Auto-Pipe: Streaming Applications on Architecturally Diverse Systems". In: Computer 43 (2010), pp. 42–49.

[9] Committee on Modeling, Simulation, and Games; Standing Committee on Technology Insight– Gauge, Evaluate, and Review; National Research Council. The Rise of Games and High Performance Computing for Modeling and Simulation. http://www.nap.edu/catalog.php?record_id=12816: National Academies Press, 2010.

[10] Richard C. Detmer. *Introduction to 80x86 Assembly Language and Computer Architecture.* Jones and Bartlett, 2009.

[11] Carl Hamacher et al. *Computer Organization and Embedded Systems,* 6th Ed, McGraw-Hill Higher Education, 2012

[12] David Harris and Sarah Harris. *Digital Design and Computer Architecture.* Second. Elsevier Science & Technology, 2012.

[13] John Hennessy and David Patterson. *Computer Architecture: A Quantitative Approach.* Fifth. Elsevier Science & Technology, 2011.

[14] Terence Kelly et al. "Eliminating Concurrency Bugs with Control Engineering". In: Computer 42 (2009), pp. 52–60.

[15] Edward Lee and Sanjit Seshia. *Introduction to Embedded Systems, A Cyber-Physical Systems Approach,* 2011 (http://leeseshia.org/)

[16] Muhammad Ali Mazidi et al. *The AVR Microcontroller and Embedded Systems: Using Assembly and C,* Prentice Hall, 2011

[17] Noam Nisan and Shimon Schocken. *The Elements of Computing Systems: Building a Modern Computer from First Principles.* The MIT Press, 2005.

[18] Tammy Noergaard. *Embedded Systems Architecture,* 2nd Ed, Elsevier Science, 2013

[19] Linda Null and Julia Lobur. "MarieSim: The MARIE computer simulator". In: J. Educ. Resour. Comput. 3 (2003).

[20] James K. Peckol. *Embedded Systems: A Contemporary Design Tool,* John Wiley & SOns, 2008

[21] Rover, D.T.; Mercado, R.A; Zhao Zhang; Shelley, M.C.; Helvick, D.S., "Reflections on Teaching and Learning in an Advanced Undergraduate Course in Embedded Systems," Education, IEEE Transactions on , vol.51, no.3, pp.400,412, Aug. 2008

[22] David Russell. *Introduction to Embedded Systems,* 2010

[23] Sagniovanni-Vincentelli et al. *Embedded Systems Development: From Functional Models to Implementations,* Springer, 2013

[24] Ronald Sass. *Embedded Systems Design with Platform FPGAs*, Elsevier Science, 2010
[25] Jon Stokes. *Inside the Machine: An Illustrated Introduction to Microprocessors and Computer Architecture*. No Starch Press, 2006.
[26] Jonathan W. Valvano. *Embedded Microcomputer Systems: Real Time Interfacing*, Cengage Learning, 20112
[27] Jonathan W. Valvano. *Embedded Systems: Introduction to Arm® Cortex(TM)-M Microcontrollers (Volume 1)*, 2nd Ed, CreateSpace Independent Publishing Platform, 2012
[28] Jonathan W. Valvano. *Introduction to Embedded Systems: Interfacing to the Freescale 9S12*, Cengage Learning, 20120
[29] Shuangbao Paul Wang and Robert S. Ledley. *Computer Architecture and Security: Fundamentals of Designing Secure Computer Systems*. John Wiley, 2013.
[30] Elecia White. *Making Embedded Systems*, O"Reilly Media
[31] Graham R. Wilson. *Embedded Systems and Computer Architecture*, Elsevier Science, 2002
[32] Marilyn Wolfe. *Computers as Components, 3rd Ed.* Morgan Kaufmann, 2012
[33] Han Wuang. *Embedded System Design with C805*, Cengage Learning, 2009
[34] Karim Yaghmour et al. *Building Embedded Linux Systems*, 2nd Ed, O'Reilly Media

Chair: Tracy Christofero | **GC#6: Course Addition**

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: Computer Science | Alpha Designator/Number: CS 515 | (•) Graded ( ) CR/NC

Contact Person: Hyoil Han | Phone: 304-696-6204

NEW COURSE DATA:

New Course Title: Data Mining

Alpha Designator/Number: C S 5 1 5

Title Abbreviation: D a t a M i n i n g

(Limit of 25 characters and spaces)

Course Catalog Description: (Limit of 30 words)

Covers (1) the process of knowledge discovery, (2) algorithms (association rules, classification, and clustering), and (3) real-world applications. Focuses on efficient data mining algorithms and scaling up data mining methods.

Co-requisite(s): None.

First Term to be Offered: Fall 2015

Prerequisite(s): None.

Credit Hours: 3

Course(s) being deleted in place of this addition (*must submit course deletion form*): None.

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

Dept. Chair/Division Head	Date 20 Oct 2014
Registrar Roberta Ferguson 110101	Date 10/22/14
College Curriculum Chair	Date 10/31/14
Graduate Council Chair T Christofero	Date 2-13-15

[redacted]

Request for Graduate Course Addition - Page 2

College: CITE | Department/Division: Computer Science | Alpha Designator/Number: CS 515

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.

Drs. Hyoil Han and Venkat N Gudivada

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 attached syllabus.

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

See attached syllabus.

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

See attached syllabus.

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

Lecture, lab., group discussion, and paper critiques.

Request for Graduate Course Addition - Page 4

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

Quiz, midterm exam, final exam, project, paper presentation, and assignment,

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

Graduate students will be required to do a research-oriented project and term paper, augmented assignments and augmented exam.

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

See 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: Computer Science

Course Number and Title: CS 515 Data Mining

Catalog Description:
Covers (1) the process of knowledge discovery, (2) algorithms (association rules, classification, and clustering), and (3) real-world applications. Focuses on efficient data mining algorithms and scaling up data mining methods.

Prerequisites: None.

First Term Offered: Fall 2015

Credit Hours: 3

Marshall University
Syllabus

Course Title/Number	Data Mining / CS 515
Semester/Year	Fall / 2015
Days/Time	Tu, Th 9:30 – 10:45 a.m.
Location	GH 211
Instructor	Hyoil Han
Office	Gullickson Hall 205B
Phone	(304)696-6204
E-Mail	hanh@marshall.edu
Office/Hours	Tu, Th 11 – noon, 3:30 – 5:30 p.m. (or 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 http://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: For more information: http://muwww-new.marshall.edu/academic-affairs/policies/

Course Description: From Catalog

Covers (1) the process of knowledge discovery, (2) algorithms (association rules, classification, and clustering), and (3) real-world applications. Focuses on efficient data mining algorithms and scaling up data mining methods.

The table below shows the following relationships: How each student learning outcomes 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 identify what data mining is, the components of knowledge discovery process, and data mining applications.	**Reading assignment** **Discussion** **In-class exercise**	**Assignment** **Exam** **Quiz**
Students identify the data preparation tasks and its implications.	**Reading assignment** **Discussion** **In-class exercise**	**Assignment** **Quiz**
Students demonstrate an understanding of the alternative knowledge representations such as rules and decision trees.	**In-class exercise** **Discussion**	**Assignment** **Exam** **Quiz**
Students examine the design and analysis of data mining algorithms and identify	**Reading assignment** **In-class exercise**	**Assignment** **Project**

approaches for scaling up data mining methods.	**Discussion**	**Exam**
Students compare alternative data mining algorithms and identify what might be most appropriate for a given data mining task.	**Paper review** **Reading assignment** **Discussion** **In-class exercise**	**Assignment** **Exam** **Paper** **Project**
Students will employ publicly available latest data mining tool(s).	**In-class exercise**	**Assignment** **Project**

Required Texts, Additional Reading, and Other Materials

1. Jiawei Han, Micheline Kamber, and Jian Pei, *Data Mining: Concepts and Techniques, 3rd Edition,* Morgan Kaufmann., 2012, ISBN: 978-0-12-381479-1
2. Technical papers will be distributed in class

References (Additional references appear at the end syllabus):

1. Ian H. Witten, Eibe Frank, and Mark A. Hall, *Data Mining: Practical Machine Learning Tools and Techniques, 3rd Ed.,* Morgan Kaufmann, 2011.
2. Tom Mitchell, *Machine Learning*, McGraw-Hill, 1997.
3. D. Hand, H. Mannila, and P. Smyth, *Principles of Data Mining*, MIT Press, 2001.

Course Requirements / Due Dates

1. **In-class exercise / Quiz**
2. **Assignment**
3. **Project**
4. **Paper presentation**
5. **Midterm exam**
6. **Final exam**
7. **Discussion**
8. **Graduate level requirements: Refer to items under Course Requirements below.**

Grading Policy

Midterm Exam	20%
Final Exam	20%
Project	20%
Homework	10%
Paper reviews and presentation	10%
Discussion / in-class exercises & quizzes	10%
In-class contributions and attendance	10%

Total Score	Letter Grade
>= 90	A
>= 80 & <90	B
>= 70 & < 80	C
>= 60 & < 70	D

Course Requirements

Reading Assignments

You are expected to review the sections of the textbook that compose the in-class topics before the class in which they are covered.

In-class Exercises & Quizzes

There will be a series of exercises or quizzes covering topics discussed in class. There will be a series of hands-on exercises that reinforce the practical utility of the concepts presented in the text and the lecture slides.

Graduate Level Requirements: Graduate students should solve additional questions marked graduate-only.

Homework Assignments

There will be a number of assignments during the semester that emphasize the quantitative aspects of data mining.

Graduate Level Requirements: Graduate students should solve additional questions marked graduate-only.

Project Report

Each student will have two options for his/her project: (i) explore a current trend in data mining by performing independent research on a focused technical topic, and (ii) implement Data Mining procedure using real-world data and WEKA.

A written poster report of this research must be prepared and submitted in electronic form (in either Microsoft Word or Adobe PDF format). In addition, each student will give a 15-minute presentation to the class describing the results of this research.

Graduate Level Requirements: Graduate students should submit both (1) a poster from an implementation-oriented real-world data mining project and (2) a research-oriented term paper using ACM format.

Paper Presentation

Each student will present a paper related to real-world applications of data mining algorithms.

Exams

There will be a mid-term and a final exam.

Graduate Level Requirements: Graduate students should solve additional questions marked

graduate-only.

Class Attendance, Participation, and Decorum

Students are expected to attend all class sessions and participate in class activities. Students are also expected to maintain a certain level of decorum that includes turning off (or silencing) cell phones, arriving to class on time, not sleeping during class, and keeping side conversations to a minimum.

Attendance Policy

Students are expected to attend and participate in every class. After **four** unexcused absences, your grade will be decreased by one letter grade. Students who are absent more than 6 classes will get "F". Coming late to class or leaving the class early without permission is considered **half** absent.

Course Schedule

This is the tentative list of topics and due dates. This will be adjusted as the semester progresses: please see the course entry on MUOnline for the current information of course topics.
Lecture slides and other handouts of each class will be posted to MUOnline on the same day after class.

Weeks	Topics & Readings
1	Introduction
2	Getting to Know Your Data
3	Data Preprocessing
4	Introduction to Association Rule Mining
5	The Apriori Algorithm
6	Introduction to Classification (Chapter 8)
7	ID3 and C4.5 algorithms and beyond
8	Midterm review & exam
9	Introduction to Clustering (Chapter 10)
10	K-means Clustering algorithm and beyond
11	Ensemble Learning
12	K-nearest neighbor and Naïve Bayes
13	Paper Presentation
14	Thanksgiving week
15	Project presentation

Exam Attendance

Students are required to take exams at the scheduled class period. Students may take an exam at a different time under one of the following conditions:

- They present a University Excused Absence
- They present a valid medical excuse
- Other extraordinary circumstance as determined by the instructor

Communication

Class handouts (slides, labs, and homework) are all available on MUOnline. Course announcements will be sent to your myMU e-mail account.

Academic Conduct:

You are allowed and encouraged to work with other students on the completion of these assignments,

subject to the following constraints:

- copying someone else's work and submitting it as your own is plagiarism and will not be tolerated
- you may work with others to develop a solution to a problem but the material you submit must be your own work and you must acknowledge your collaborators
- unless designated as a team exercise, you may not sub-divide the tasks of an assignment; each student is expected to complete the whole assignment

It is your responsibility to satisfy the spirit of this conduct. If you have any questions, please ask the instructor for clarification. Depending on the severity of the offense, the instructor may:

- Take no action
- Penalize the student on the assignment in question
- Assign the student a failing grade in the course

Web Resources:

WEKA	http://www.cs.waikato.ac.nz/ml/weka/
R	http://www.r-project.org/
KDnuggets	http://www.kdnuggets.com/

Affirmative Action Policy:

This course will follow Marshall University's policy on Affirmative Action, which can be found on page 67 of the 2014-2015 undergraduate catalog. (http://www.marshall.edu/ucomm/files/web/UG_14-15_published.pdf) Specifically, all students will be afforded equal opportunity without regard to race, color, sex, religion, age, disability, national origin, or sexual orientation.

Inclement Weather Policy

Students can find information concerning Marshall's policy regarding inclement weather on p. 68 of the 2014-2015 undergraduate catalog.

Policy for Students with Disabilities:

Marshall University is committed to equal opportunity in education for all students, including those with physical, learning and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall Room 117, phone 304 696-2271 to provide documentation of their disability. Following this, the DSS Coordinator will send a letter to each of the student's instructors outlining the academic accommodation they will need to ensure equality in classroom experiences, outside assignment, testing and grading. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, please visit http://www.marshall.edu/disabled or contact Disabled Student Services Office at Prichard Hall Room 117, phone 304-696-2271.

University Computing Services Acceptable Use Policy:

Students are expected to read, understand, and follow the Acceptable Use Policy which can be found at http://www.marshall.edu/ucs/CS/accptuse.asp.

Additional References

1) Data Mining (i.e., Knowledge Discovery in Data [KDD]) Conferences
   a) ACM SIGKDD Int. Conf. on Knowledge Discovery in Databases and Data Mining (KDD)
   b) SIAM Data Mining Conf. (SDM)
   c) (IEEE) Int. Conf. on Data Mining (ICDM)
   d) European Conf. on Machine Learning and Principles and practices of Knowledge Discovery and Data Mining (ECML-PKDD)
   e) Pacific-Asia Conf. on Knowledge Discovery and Data Mining (PAKDD)
2) Other related conferences
   a) ACM SIGMOD, VLDB, ICDE, EDBT, ICDT
   b) Web and IR conferences: WWW, SIGIR
   c) ML conferences: ICML
3) Journals
   a) Data Mining and Knowledge Discovery (DAMI or DMKD)
   b) IEEE Trans. On Knowledge and Data Eng. (TKDE)
   c) KDD Explorations (http://www.kdd.org/explorations)
   d) ACM Trans. on KDD
4) Tools
   a) WEKA: http://www.cs.waikato.ac.nz/ml/weka/
   b) R Project: http://www.r-project.org/

5) T. Dasu and T. Johnson. Exploratory Data Mining and Data Cleaning. John Wiley & Sons, 2003
6) U. M. Fayyad, G. Piatetsky-Shapiro, P. Smyth, and R. Uthurusamy. Advances in Knowledge Discovery and Data Mining. AAAI/MIT Press, 1996
7) U. Fayyad, G. Grinstein, and A. Wierse, Information Visualization in Data Mining and Knowledge Discovery, Morgan Kaufmann, 2001
8) D. J. Hand, H. Mannila, and P. Smyth, Principles of Data Mining, MIT Press, 2001
9) T. Hastie, R. Tibshirani, and J. Friedman, The Elements of Statistical Learning: Data Mining, Inference, and Prediction, 2nd ed., Springer-Verlag, 2009
10) B. Liu, Web Data Mining, 2nd ed., Springer 2011.
11) T. M. Mitchell, Machine Learning, McGraw Hill, 1997
12) G. Piatetsky-Shapiro and W. J. Frawley. Knowledge Discovery in Databases. AAAI/MIT Press, 1991
13) P.-N. Tan, M. Steinbach and V. Kumar, Introduction to Data Mining, Wiley, 2005
14) I. H. Witten and E. Frank, Data Mining: Practical Machine Learning Tools and Techniques with Java Implementations, Morgan Kaufmann, 3rd ed. 2011
15) T. Dasu and T. Johnson. Exploratory Data Mining and Data Cleaning. John Wiley, 2003
16) U. Fayyad, G. Grinstein, and A. Wierse. Information Visualization in Data Mining and Knowledge Discovery, Morgan Kaufmann, 2001
17) L. Kaufman and P. J. Rousseeuw. Finding Groups in Data: an Introduction to Cluster Analysis. John Wiley & Sons, 1990.
18) H. V. Jagadish, et al., Special Issue on Data Reduction Techniques. Bulletin of the Tech. Committee on Data Eng., 20(4), Dec. 1997
19) D. A. Keim. Information visualization and visual data mining, IEEE trans. on Visualization and Computer Graphics, 8(1), 2002
20) D. Pyle. Data Preparation for Data Mining. Morgan Kaufmann, 1999
21) S. Santini and R. Jain," Similarity measures", IEEE Trans. on Pattern Analysis and Machine Intelligence, 21(9), 1999
22) D. P. Ballou and G. K. Tayi. Enhancing data quality in data warehouse environments. Comm. of ACM, 42:73-78, 1999

23) A. Bruce, D. Donoho, and H.-Y. Gao. Wavelet analysis. *IEEE Spectrum*, Oct 1996
24) M. Hua and J. Pei. Cleaning disguised missing data: A heuristic approach. *KDD'07*
25) H. V. Jagadish, et al., Special Issue on Data Reduction Techniques. Bulletin of the Technical Committee on Data Engineering, 20(4), Dec. 1997
26) H. Liu and H. Motoda (eds.). *Feature Extraction, Construction, and Selection: A Data Mining Perspective*. Kluwer Academic, 1998
27) J. E. Olson. *Data Quality: The Accuracy Dimension*. Morgan Kaufmann, 2003
28) D. Pyle. Data Preparation for Data Mining. Morgan Kaufmann, 1999
29) R. Wang, V. Storey, and C. Firth. A framework for analysis of data quality research. IEEE Trans. Knowledge and Data Engineering, 7:623-640, 1995
30) R. Agrawal, T. Imielinski, and A. Swami. Mining association rules between sets of items in large databases. SIGMOD'93
31) R. Agrawal and R. Srikant. Mining sequential patterns. ICDE'95
32) R. Agrawal and R. Srikant. Fast algorithms for mining association rules. VLDB'94
33) H. Mannila, H. Toivonen, and A. I. Verkamo. Efficient algorithms for discovering association rules. KDD'94
34) A. Savasere, E. Omiecinski, and S. Navathe. An efficient algorithm for mining association rules in large databases. VLDB'95
35) J. S. Park, M. S. Chen, and P. S. Yu. An effective hash-based algorithm for mining association rules. SIGMOD'95
36) H. Toivonen. Sampling large databases for association rules. VLDB'96
37) S. Brin, R. Motwani, J. D. Ullman, and S. Tsur. Dynamic itemset counting and implication rules for market basket analysis. SIGMOD'97
38) S. Sarawagi, S. Thomas, and R. Agrawal. Integrating association rule mining with relational database systems: Alternatives and implications. SIGMOD'98
39) S. Brin, R. Motwani, and C. Silverstein. Beyond market basket: Generalizing association rules to correlations. SIGMOD'97.
40) M. Klemettinen, H. Mannila, P. Ronkainen, H. Toivonen, and A. I. Verkamo. Finding interesting rules from large sets of discovered association rules. CIKM'94.
41) R. J. Hilderman and H. J. Hamilton. *Knowledge Discovery and Measures of Interest*. Kluwer Academic, 2001.
42) E. Omiecinski. Alternative Interest Measures for Mining Associations. TKDE'03.
43) T. Wu, Y. Chen, and J. Han, "Re-Examination of Interestingness Measures in Pattern Mining: A Unified Framework", Data Mining and Knowledge Discovery, 21(3):371-397, 2010
44) Manish Mehta, Rakesh Agrawal, Jorma Rissanen: SLIQ: A Fast Scalable Classifier for Data Mining. EDBT 1996: 18-32
45) J. Shafer et al., SPRINT: A Scalable Parallel Classifier for Data Mining. VLDB'96
46) Gehrke, Ramakrishnan & Ganti, RainForest - A Framework for Fast Decision Tree Construction of Large Datasets. VLDB'98
47) Jain AK, Dubes RC, Algorithms for clustering data, Prentice-Hall, 1988.

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: COHP

Dept/Division: School of Kinesiology

Contact Person: Joseph A. Beckett, EdD, ATC

Phone: 304-696-2929

Degree Program: Entry Level Masters of Science in Athletic Training

Check action requested: ☐ Addition ☐ Deletion ☒ Change

Effective Term/Year: Fall 20 15 ☐ Spring 20 ☐ Summer 20 ☐

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 Gary E	Date 10/20/14
College Curriculum Chair Lynnann Graviano	Date 10/23/14
College Dean Gary E	Date 10/27/14
Graduate Council Chair T Christofero	Date 2-13-15
Provost/VP Academic Affairs	Date
Presidential Approval	Date
Board of Governors Approval	Date

Request for Graduate Addition, Deletion, or Change of a Major or Degree-Page 2

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

The purpose of the revisions to the ELM-AT that are being proposed is aimed at 1) making the ELM-AT curriculum more in line with current accepted nomenclature of our accreditation body (CAATE) and our national professional organizations (NATA and BOC), 2) to create a program that is highly attractive to interested students, and 3) to take advantage of the strengths and opportunities available at MU and in this geograhic region.

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)
Please refer to attached page

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.

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)

- HS 512, change course title from "Practical and Emergency Techniques in Athletic Training" to "Foundational Clinical Skills in Athletic Training"
- HS 515, Athletic Training Clinical Experience I; decrease credit hours awarded from 2 to 1
- HS 522, Orthopedic Skills and Procedures (3cr); delete from curriculum
- HS 523, Orthopedic Assessment of Upper Extremity for Athletic Trainers; increase credit hours from 3 to 4 to add lab component
- HS 524, Orthopedic Assessment of Lower Extremity for Athletic Trainers; increase credit hours from 3 to 4 to add lab component
- HS 548, change course title from "Therapeutic Modalities" to "Therapeutic Interventions I in Athletic Training"; decrease credit hours from 5 to 4
- HS 549, change course title from "Therapeutic Exercise" to "Therapeutic Interventions II in Athletic Training"; increase credit hours awarded from 3 to 4
- HS 639, change title from "Health Assessment for the Athletic Trainer" to "Examination of General Medical Conditions"

Add the following courses to the list of required courses:

- HS 630, Seminar in Athletic Training, 3 hours
- HS 681, Graduate Project in Athletic Training, 3 hours
- ESS 671, Research Methods, 3 hours

Remove from the list of required courses the following courses:

- ESS 636, Structural Kinesiology, 3 hours
- ESS 642, Advanced Training and Conditioning, 3 hours

Add the following as courses the student may elect to take:

Students choose two courses (6 hours) from the below list of courses:

HS 566, Biomechanical Analysis (3 hrs)

ESS 636, Structural Kinesiology (3 hrs)

ESS 642, Advanced Training and Conditioning (3 hrs)

HS/ESS Elective at 600 level (3 hrs)

Request for Graduate Addition, Deletion, or Change of a Major or Degree-Page 3

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)

Please refer to attached current catalog description.

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.

Entry-Level Masters of Science - Athletic Training

The Marshall University Athletic Training Program (ATP) is fully accredited by the CAATE (Commission on Accreditation of Athletic Training Education; www.caate.net). It is a rigorous academic program that includes course work in athletic training, anatomy, physiology, exercise physiology, psychology, and other science related courses. The multifaceted program blends classroom instruction with clinical rotations where students obtain real life experience working hands-on with certified athletic trainers, physicians, physical therapists, and other allied health care professionals to provide patient care. The rigorous curriculum prepares students to take the national BOC board exam (Board of Certification Exam; www.bocatc.org) to practice as entry-level professionals. This program is NOT an Advanced Practice Masters available to students who are already eligible for BOC certification. A degree in Athletic Training and BOC certification offer graduates opportunities to practice in a variety of settings. These settings include, but are not limited to, high school, college and professional athletics, outpatient clinics, industrial rehabilitation sites, physician practices, the performing arts, safety settings, and higher education.

The ELM in AT is a 3-2 program, allowing current Marshall University students to apply after their 3rd year of undergraduate studies and graduate two years later (5 years total) with both bachelors and masters degrees. Additionally, students who hold a bachelors degree from either Marshall or another accredited institution can also apply and complete the two-year professional masters. Both routes prepare students to take the national BOC board exam. Acceptance into the ATP is competitive and separate from acceptance to Marshall University.

Admission Criteria

Acceptance into the Athletic Training Program is competitive and not guaranteed. Prospective students must meet the minimum criteria listed below to be considered for admission to the program:

- Admission to Marshall University;
- An overall cumulative minimum GPA of 2.70;
- A C or better on all pre-requisite coursework
- Apply to the Athletic Training Program (due February 15)
- 50 observation hours with a BOC-certified Athletic Trainer
- Successful interview (Interviews are extended in March)
- Ability to meet the Technical Standards of Admission documented by a licensed physician

Prerequisites – Provisional Admission Criteria

Prospective students must have taken or be currently enrolled in the following courses when applying to the Athletic Training program:

- All students applying in their 3rd year from Marshall University must have all Core I, Core II, and a minimum of 90 credit hours completed by the end of the application semester
- Anatomy and physiology (6-8cr)

- Exercise physiology (3-4cr)
- First Aid; must also hold current CPR-AED certification (1-3cr)
- Fitness assessment, exercise prescription, or strength and conditioning (3cr)
- General psychology (3cr)
- Introduction to health science, exercise science, athletic training or similar (3cr)
- Kinesiology or biomechanics (3-4cr)
- Nutrition (3cr)
- Personal health or fitness (1-3cr)
- Statistical methods (3cr)

Athletic Training Core

- HS 609, Organization and Administration in Athletic Training
- HS 512, Practical and Emergency Techniques in Athletic Training
- HS 515, Athletic Training Clinical Experience I
- HS 522, Orthopedic Skills and Procedures
- HS 523, Orthopedic Assessment of the Upper Extremity for Athletic Trainers
- HS 524, Orthopedic Assessment of the Lower Extremity for Athletic Trainers
- HS 525, Athletic Training Clinical Experience II
- HS 634, Athletic Training Externship
- HS 639, Health Assessment for the Athletic Trainer
- HS 645, Athletic Training Clinical Experience III
- HS 548, Therapeutic Modalities in Athletic Training
- HS 549, Therapeutic Exercise in Athletic Training
- HS 655, Athletic Training Clinical Experience IV (Capstone)
- HS 679, Trends in Athletic Training
- ESS 636, Structural Kinesiology
- ESS 642, Advanced Training and Conditioning
- HS/ESS Elective (3cr at 600 level)

Additional Requirements

- BOC Exam registration
- 3.0 overall GPA and B or better on all required coursework
- Completion of HS 655 with a B or better

Entry-Level Masters of Science - Athletic Training

The Marshall University Athletic Training Program (ATP) is fully accredited by the CAATE (Commission on Accreditation of Athletic Training Education; www.caate.net). It is a rigorous academic program that includes course work in athletic training, anatomy, physiology, exercise physiology, psychology, and other science related courses. The multifaceted program blends classroom instruction with clinical rotations where students obtain real life experience working hands-on with certified athletic trainers, physicians, physical therapists, and other allied health care professionals to provide patient care. The rigorous curriculum prepares students to take the national BOC board exam (Board of Certification Exam; www.bocatc.org) to practice as entry-level professionals. This program is NOT an Advanced Practice Masters available to students who are already eligible for BOC certification or currently certified by the BOC. A degree in Athletic Training and BOC certification offer graduates opportunities to practice in a variety of clinical settings. These settings include, but are not limited to, high school, college and professional athletics, outpatient clinics, industrial rehabilitation sites, physician practices, the performing arts, safety settings, and higher education.

The ~~ELM-~~ELM-AT~~in-AT~~ is a 3-2 program, allowing current Marshall University students to apply after their 3rd year of undergraduate studies and graduate two years later (5 years total) with both bachelors and masters degrees. Additionally, students who hold a bachelor's degree from either Marshall or another accredited institution can also apply and complete the two-year ~~professional masters~~ Entry-Level Masters of Science in Athletic Training program. Both routes prepare students to take the national BOC board exam. Acceptance into the ~~ATP-~~ELM-AT is competitive and separate from acceptance to Marshall University.

Admission Criteria

Acceptance into the ~~Athletic Training Program~~ Entry-Level Masters of Science in Athletic Training Program is competitive and not guaranteed. Prospective students must meet the minimum criteria listed below to be considered for admission to the program:

- Admission to Marshall University;
- An overall cumulative minimum GPA of 2.70;
- A letter grade of "C" ~~C~~ or better on all pre-requisite coursework
- ~~Apply to the Athletic Training Program (due February 15)~~ Submit by February 15 all forms and supporting documentation to apply to the ELM-AT (NOTE: refer to the current edition of the Athletic Training Program Policies and Procedures Manual for information regarding the application and admission requirements)
- ~~50 observation hours with a BOC certified Athletic Trainer~~ Directed observation clinical experience (NOTE: refer to the current edition of the ATP Policies and Procedures Manual for details regarding the requirements of this DO clinical experience)
- Successful interview (Interviews are extended in March)
- Ability to meet the Technical Standards of Admission documented by a licensed physician

Prerequisites – Provisional Admission Criteria

Prospective students must have taken or be currently enrolled in the following courses when applying to the ~~Athletic Training program~~ ELM-AT program:

~~•~~ All students applying in their 3rd year from Marshall University must have all Core I, Core II, and a minimum of 90 credit hours completed by the end of the application semester including the below pre-requisite courses:

- Anatomy and physiology (6-8cr)
- Introduction to Athletic Training/Prevention & Care of Athletic Injuries (3cr)
- Exercise physiology (3-4cr)
- First Aid and CPR; must also hold current First Aid and CPR ~~AED~~ healthcare provider or professional rescuer certifications (1-3cr)
- ~~Fitness assessment, exercise prescription, or strength and conditioning (3cr)~~
- General psychology (3cr)
- ~~Introduction to health science, exercise science, athletic training or similar (3cr)~~
- Kinesiology or biomechanics (3-4cr)
- Nutrition (3cr)
- Personal H~~h~~ealth/Wellness ~~or fitness~~ (~~1~~2-3cr)
- Statistical methods (3cr)
- Medical terminology (2-3cr)

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Athletic Training Core

- ~~HS 609, Organization and Administration in Athletic Training~~
- HS 512, ~~Practical and Emergency Techniques~~ Foundational Clinical Skills in Athletic Training (3cr)
- HS 515, Athletic Training Clinical Experience I (1cr)
- ~~HS 522, Orthopedic Skills and Procedures~~
- HS 523, Orthopedic Assessment of the Upper Extremity for Athletic Trainers (4cr)
- HS 524, Orthopedic Assessment of the Lower Extremity for Athletic Trainers (4cr)
- HS 525, Athletic Training Clinical Experience II (2cr)
- ~~HS 634, Athletic Training Externship~~
- ~~HS 639, Health Assessment for the Athletic Trainer~~

- ~~HS 645, Athletic Training Clinical Experience III~~
- HS 548, Therapeutic ~~Modalities~~ Interventions I in Athletic Training (4cr)
- HS 549, Therapeutic ~~Exercise~~ Interventions II in Athletic Training (4cr)
- ~~HS 655, Athletic Training Clinical Experience IV (Capstone)~~
- HS 609, Organization and Administration in Athletic Training (3cr)
- HS 630, Seminar in Athletic Training (3cr)
- HS 634, Athletic Training Externship (3cr)
- HS 639, Examination of General Medical Conditions (3cr)
- HS 645, Athletic Training Clinical Experience III (3cr)
- HS 655, Athletic Training Clinical Experience IV (3cr)
- HS 679, Trends in Athletic Training
- HS 681, Graduate Project in Athletic Training (3cr)
- ESS 671, Research Methods (3cr)

Students choose two courses (6 hours) from the below list of courses:

- HS 566, Biomechanical Analysis (3cr)
- ESS 636, Structural Kinesiology (3cr)
- ESS 642, Advanced Training and Conditioning (3cr)
- HS/ESS Elective (3cr at 600 level)

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Additional Requirements

- BOC Exam registration
- 3.0 overall GPA and B or better on all required coursework
- Completion of ~~HS 655~~ all Athletic Training Clinical Experience courses with a letter grade of "B" ~~B~~ or better

Request for Graduate Addition, Deletion, or Change of a Major or Degree-Page 4

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)

Please see attached pages

Entry-Level Masters of Science - Athletic Training

The Marshall University Athletic Training Program (ATP) is fully accredited by the CAATE (Commission on Accreditation of Athletic Training Education; www.caate.net). It is a rigorous academic program that includes course work in athletic training, anatomy, physiology, exercise physiology, psychology, and other science related courses. The multifaceted program blends classroom instruction with clinical rotations where students obtain real life experience working hands-on with certified athletic trainers, physicians, physical therapists, and other allied health care professionals to provide patient care. The rigorous curriculum prepares students to take the national BOC board exam (Board of Certification Exam; www.bocatc.org) to practice as entry-level professionals. This program is NOT an Advanced Practice Masters available to students who are already eligible for BOC certification or currently certified by the BOC. A degree in Athletic Training and BOC certification offer graduates opportunities to practice in a variety of clinical settings. These settings include, but are not limited to, high school, college and professional athletics, outpatient clinics, industrial rehabilitation sites, physician practices, the performing arts, safety settings, and higher education.

The ELM-AT is a 3-2 program, allowing current Marshall University students to apply after their 3rd year of undergraduate studies and graduate two years later (5 years total) with both bachelors and masters degrees. Additionally, students who hold a bachelor's degree from either Marshall or another accredited institution can also apply and complete the two-year Entry-Level Masters of Science in Athletic Training program. Both routes prepare students to take the national BOC board exam. Acceptance into the ELM-AT is competitive and separate from acceptance to Marshall University.

Admission Criteria

Acceptance into the -Entry-Level Masters of Science in Athletic Training Program is competitive and not guaranteed. Prospective students must meet the minimum criteria listed below to be considered for admission to the program:

- Admission to Marshall University;
- An overall cumulative minimum GPA of 2.70;
- A letter grade of "C" or better on all pre-requisite coursework
- Submit by February 15 all forms and supporting documentation to apply to the ELM-AT (NOTE: refer to the current edition of the Athletic Training Program Policies and Procedures Manual for information regarding the application and admission requirements)
- Directed observation clinical experience (NOTE: refer to the current edition of the ATP Policies and Procedures Manual for details regarding the requirements of this DO clinical experience)
- Successful interview (Interviews are extended in March)
- Ability to meet the Technical Standards of Admission documented by a licensed physician

Prerequisites – Provisional Admission Criteria

Prospective students must have taken or be currently enrolled in the following courses when applying to the ELM-AT program:

All students applying in their 3rd year from Marshall University must have all Core I, Core II, and a minimum of 90 credit hours completed by the end of the application semester including the below pre-requisite courses:

- Anatomy and physiology (6-8cr)
- Introduction to Athletic Training/Prevention & Care of Athletic Injuries (3cr)
- Exercise physiology (3-4cr)
- First Aid and CPR; must also hold current First Aid and CPR healthcare provider or professional rescuer certifications (1-3cr)
- General psychology (3cr)
- Introduction to health science, exercise science, athletic training or similar (3cr)
- Kinesiology or biomechanics (3-4cr)
- Nutrition (3cr)
- Personal Health/Wellness (2-3cr)
- Statistical methods (3cr)
- Medical terminology (2-3cr)

Athletic Training Core

- HS 512, -Foundational Clinical Skills in Athletic Training (3cr)
- HS 515, Athletic Training Clinical Experience I (1cr)
- HS 523, Orthopedic Assessment of the Upper Extremity for Athletic Trainers (4cr)
- HS 524, Orthopedic Assessment of the Lower Extremity for Athletic Trainers (4cr)
- HS 525, Athletic Training Clinical Experience II (2cr)
- HS 548, Therapeutic Interventions I in Athletic Training (4cr)
- HS 549, Therapeutic Interventions II in Athletic Training (4cr)
- HS 609, Organization and Administration in Athletic Training (3cr)
- HS 630, Seminar in Athletic Training (3cr)
- HS 634, Athletic Training Externship (3cr)

- HS 639, Examination of General Medical Conditions (3cr)
- HS 645, Athletic Training Clinical Experience III (3cr)
- HS 655, Athletic Training Clinical Experience IV (3cr)
- HS 679, Trends in Athletic Training
- HS 681, Graduate Project in Athletic Training (3cr)
- ESS 671, Research Methods (3cr)

Students choose two courses (6 hours) from the below list of courses:

- HS 566, Biomechanical Analysis (3cr)
- ESS 636, Structural Kinesiology (3cr)
- ESS 642, Advanced Training and Conditioning (3cr)
- HS/ESS Elective (3cr at 600 level)

Additional Requirements

- BOC Exam registration
- 3.0 overall GPA and B or better on all required coursework
- Completion of all Athletic Training Clinical Experience courses with a letter grade of "B" or better

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: School of Kinesiology
Major or Degree: Entry Level Masters of Science in Athletic Training
Type of Change: Change

Rationale: The purpose of the revisions to the ELM-AT that are being proposed is aimed at 1) making the ELM-AT curriculum more in line with current accepted nomenclature of our accreditation body (CAATE) and our national professional organizations (NATA and BOC), 2) to create a program that is highly attractive to interested students, and 3) to take advantage of the strengths and opportunities available at MU and in this geograhic region (NOTE: please refer to pages attached that describe specific changes to the curriculum).

Chair: Tracy Christofero | **GC#4: Major or Degree**

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: Liberal Arts

Dept/Division: Modern Languages

Contact Person: Caroline A. Perkins

Phone: 696-2742

Degree Program: GL 10-MA Spanish

Check action requested: ☐ Addition ☒ Deletion ☐ Change

Effective Term/Year: Fall 20 ☐ Spring 20 15 Summer 20 ☐

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: Caroline A. Perkins	Date: 11/12/14
College Curriculum Chair: Kevin Law	Date: 11/12/14
College Dean: R B Bookwalter / T M Tw	Date: 11/19/14
Graduate Council Chair: T Christofero	Date: 2-13-15
Provost/VP Academic Affairs: ______	Date: ______
Presidential Approval: ______	Date: ______
Board of Governors Approval: ______	Date: ______

Form updated 3/2012

Rec'd In COLA Office
Date: 11/19/14

Request for Graduate Addition, Deletion, or Change of a Major or Degree-Page 2

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

With the change of support structure for graduate students, we have not been able to attract students into this program.

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)

Program Deletion

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.

N/A

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.

N/A

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

Request for Graduate Addition, Deletion, or Change of a Major or Degree-Page 3

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.

Request for Graduate Addition, Deletion, or Change of a Major or Degree-Page 4

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)

< Deletion of GL 10 - MA Spanish >

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: Modern Languages

Major or Degree: GL 10 - MA Spanish

Type of Change: Deletion

Rationale: With the change of support structure for graduate students, we have not been able to attract students into this program.

Focus area 3: Demography, health, and human environments

SOC 501 Population and Human Ecology
SOC 528 Medical Sociology
SOC 532 Sociology of Appalachia
SOC 540 Introduction to Sociology of Aging
SOC 542 Urban Sociology
SOC 552 Sociology of Death and Dying
SOC 640 Problems and Prospects for an Aging Society
SOC 580 Special Topic (dependent on content)
SOC 668 Seminar (dependent on content)

Focus area 4: Social problems and collective behavior

SOC 513 Social Movements and Social Change
SOC 520 Criminology
SOC 535 Juvenile Delinquency
SOC 560 The Holocaust and Genocide
SOC 602 Contemporary Social Change
SOC 620 Criminology
SOC 640 Problems and Prospects for an Aging Society
SOC 580 Special Topic (dependent on content)
SOC 668 Seminar (dependent on content)

Anthropology Area of Emphasis (12 credit hours)

The requirements for the Area of Emphasis include:

ANT 600 Ethnographic Methods
ANT 567 Culture through Ethnography OR
ANT 591 Theory in Ethnology

An additional two classes (6 credit hours) of courses at the 500- or 600-level in Anthropology as approved by the student's advisor and the Graduate Program Director in the Department of Sociology and Anthropology and included in the Plan of Study mentioned above.

Students who opt for the Anthropology Area of Emphasis have to choose courses from two out of the four sociology focus areas if they write a thesis or from three out of the four sociology focus areas if they write a problem report to comply with the breadth requirements discussed above.

Anthropology Minor

A minor in anthropology is earned by taking at least 6 credit hours in courses at the 500- or 600- level in Anthropology as approved by the student's advisor and the Graduate Program Director in the Department of Sociology and Anthropology.

Sociology Minor

A minor in sociology is earned by taking at least 6 credit hours in courses at the 500- or 600- level in Sociology as approved by the student's advisor and the Graduate Program Director in the Department of Sociology and Anthropology.

Accelerated Master's Degree in Sociology

An Accelerated Master's Degree is available for qualified undergraduate sociology majors. See the Accelerated Master's Degree section in this catalog for details.

SPANISH, M.A. Current Description

Program Description

The M.A. in Spanish provides an opportunity for students to further their knowledge of Spanish and Latin American cultures. Students completing this degree would increase their qualifications as primary and secondary education teachers or would be prepared to pursue a Ph.D. in Spanish.

Admission Requirements

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

In addition: (send all materials directly to the Graduate Admissions Office)

- Undergraduate major in Spanish with a background in literature and culture.
- Undergraduate GPA of 3.0 on a 4.0 scale for all previously completed undergraduate university work.;
- GRE scores;
- Three letters of recommendation, at least two of which are from individuals familiar with the applicant's academic abilities in Spanish;
- Admission examination (interview, essay, and short translation) in the Department of Modern Languages, which will evaluate students on all four language skills: reading, writing, listening and speaking;
- Personal statement that describes the applicantts background, goals, and interest in the program.

Program Requirements

Students will earn thirty-six hours above the undergraduate degree.

- Students must develop a Plan of Study with the Director of Graduate Studies. A Plan of Study approved by the department/program and the graduate dean must be filed in the Graduate College office before the student registers for the 12th semester hour.
- Grade Point Average in all graduate courses must be maintained at or above 3.00.
- A final, written comprehensive examination.
- Study abroad strongly encouraged before starting the program or shortly thereafter.

Required Introductory Courses:

SPN 506 Composition, Conversation and Introduction to Hispanic Literature
SPN 655 Introduction to Spanish Linguistics
SPN 656 Critical Theory for Spanish/Latin American Literature
SPN 535 Culture and Civilization: Contemporary Latin America OR
SPN 536 Culture and Civilization: Contemporary Spain.

Students choose a thesis or non-thesis option.

Thesis Option:

Required/Introductory courses above (four): 12 hours

Spanish and Latin American Literature and Culture Courses (18 hours); *Note:* These courses can include up to six hours of online applied linguistics courses from the University of Nebrija in Spain.

Thesis in (Spanish or Latin American) literature: 6 hours

Total: 36 hours

Non-Thesis Option:

Required/Introductory courses above (four): 12 hours

Spanish and Latin American Literature and Culture Courses (24 hours); *Note:* These courses can include up to six hours of online applied linguistics courses from the University of Nebrija in Spain.

Total: 36 hours

Chair: Tracy Christofero | **GC#7: Course Change**

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: COHP Dept/Division: School of Kinesiolog Current Alpha Designator/Number: HS 512

Contact Person: Joseph A. Beckett, EdD, ATC Phone: 304-696-2929

CURRENT COURSE DATA:

Course Title: Practical and Emergency Techniques in Athletic Training

Alpha Designator/Number: H S 5 1 2

Title Abbreviation: P R A C & E M E R G E N C Y T E C H I N A T

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 10/20/14
Registrar [signature]	Date 10/22/14
College Curriculum Chair [signature]	Date 10/23/14
Graduate Council Chair [signature]	Date 2-13-15

Request for Graduate Course Change - Page 2

College: COHP | Department/Division: School of Kinesiology | Alpha Designator/Number: HS 512

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

Change in CATALOG TITLE: ☒ YES ☐ NO

From: PRACTICAL & EMERGENCY TECHNIQU (limited to 30 characters and spaces)

To: FOUND CLINICAL SKILLS IN AT

If Yes, Rationale: The new title reflects that the content of this course will be more comprehensive and encompassing than the previous title of "Emergency Techniques"

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

To

Change in COURSE CONTENT: ☐ YES ☒ NO (May attach separate page if needed)

From

To

Rationale

Request for Graduate Course Change-Page 4

College: COHP

Department: School of Kinesiology

Course Number/Title HS 512, Foundational Clinical Skills in Athletic Training

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.

Not applicable

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

Request for Graduate Course Change - Page 5

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: School of Kinesiology
Current Course Number/Title: HS 512, Practical and Emergency Techniques in Athletic Training
New Course Title: Foundational Clinical Skills in Athletic Training
Rationale: The new title reflects that the content of this course will be more comprehensive and encompassing than "Emergency Techniques"
Catalog Description: Taping, bracing, spine boarding, airway and oxygen administration, and other advanced emergency and practical care techniques used in athletic training. (PR: program admission)

Chair: Tracy Christofero | **GC#7: Course Change**

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: COHP | Dept/Division: School of Kinesiolog | Current Alpha Designator/Number: HS 515

Contact Person: Joseph A. Beckett, EdD, ATC | Phone: 304-696-2929

CURRENT COURSE DATA:

Course Title: Clinical Practicum I

Alpha Designator/Number: H S 5 1 5

Title Abbreviation: C L I N I C A L P R A C T I C U M I

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 10/20/14
Registrar	Date 10/22/14
College Curriculum Chair	Date 10/23/14
Graduate Council Chair	Date 2-13-15

Request for Graduate Course Change - Page 2

College: COHP | Department/Division: School of Kinesiology | Alpha Designator/Number: HS 515

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 develop evaluation and treatment skills of the student under the direction of a BOC-certified Athletic Trainer. Requires completion of 150 clinical hours.

To: To develop evaluation and treatment skills of the student under the direction of a BOC-certified Athletic Trainer. Requires completion of 75 clinical hours.

If Yes Rationale: Credit hours awarded need to be changed because of decreased clinical hours to complete the course and given the time frame in which this course will be taken. Thus, the description needs to be modified accordingly.

Request for Graduate Course Change - Page 3

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: 2 credit hours

To: 1 credit hour (NOTE: because this course will be taken during the 3-week period prior to the fall semester, and given that this is a clinical course, students can only be expected to obtain 75 hours during this period, unlike the 150 clinical hours that is required for the 2 credit hour clinical courses)

Change in COURSE CONTENT: ☐ YES ☒ NO (May attach separate page if needed)

From:

To:

Rationale:

Request for Graduate Course Change-Page 4

College: COHP

Department: School of Kinesiology

Course Number/Title HS 515, Clinical Practicum I

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.

Not applicable

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

Request for Graduate Course Change - Page 5

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 CREDIT HOURS CHANGE
Department: School of Kinesiology
Current Course Number/Title: HS 515, Clinical Practicum I
New Course Number:
Rationale: Credit hours awarded need to be changed because of decreased clinical hours to complete the course and given the time frame in which this course will be taken. Thus, the description needs to be modified accordingly.
Catalog Description (old): To develop evaluation and treatment skills of the student under the direction of a BOC-certified Athletic Trainer. Requires completion of 150 clinical hours.
Catalog Description (new): To develop evaluation and treatment skills of the student under the direction of a BOC-certified Athletic Trainer. Requires completion of 75 clinical hours.
Credit hours: 1

Chair: Tracy Christofero | **GC#7: Course Change**

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: COHP | Dept/Division: School of Kinesiolog | Current Alpha Designator/Number: HS 523

Contact Person: Joseph A. Beckett, EdD, ATC | Phone: 304-696-2929

CURRENT COURSE DATA:

Course Title: Orthopedic Assessment of the Upper Extremity for Athletic Trainers

Alpha Designator/Number: H S 5 2 3

Title Abbreviation: O R T H O A S S E S S O F U P P E R E X T

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 10/20/14
Registrar	Date 10/22/14
College Curriculum Chair	Date 10/23/14
Graduate Council Chair	Date 2-13-15

Request for Graduate Course Change - Page 2

College: COHP | Department/Division: School of Kinesiology | Alpha Designator/Number: HS 523

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 - Page 3

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: 3 credit hours

To: 4 credit hours - a separate lab component of this course is needed, so the instructor has adequate and appropriate time to teach students all the associated clinical skills/competencies embedded in this course (NOTE: because HS 522, Orthopedic Skills and Procedures, will be deleted from the ELM-AT program, there is room within the program to make this change).

Change in COURSE CONTENT: ☒ YES ☐ NO (May attach separate page if needed)

From: Please refer to current HS 423 syllabus attached

To: Please refer to new HS 523 syllabus attached (NOTE: a separate syllabus for lecture and lab components of HS 523 are attached)

Rationale: A separate lab component of this course is needed, so the instructor has adequate and appropriate time to teach students all the associated clinical skills/competencies embedded in this course.

Marshall University
College of Health Professions
School of Kinesiology
Athletic Training Program
HS 523 – Spring 2017 (4 credit hours)
Orthopedic Assessment of the Upper Extremity for Athletic Trainers

Instructor: Dr. Joe Beckett, ATC

Contact Info: 304-696-2929 (O) (859) 248-9582 (Cell 7-10 pm)
Beckett76@marshall.edu Can also send text to this #

Time/Days: TBD (Lecture) **Room:** Gullickson 203
TBD (Lab)

Course Overview: This course entails the study of evaluation techniques of injuries to the head, cervical spine, and upper extremities. Review of anatomy, injury recognition, muscle testing, treatment protocols and preventative measures are also examined. Classroom and skill laboratory sessions are designed to introduce the learner to proper evaluation techniques of the lower extremity that are needed in the various athletic training settings. Three hours lecture, two hours laboratory.

WHAT IS AN OUTCOME?
An outcome is what a student MUST achieve in this course in order to be considered competent enough to advance to higher level Athletic Training courses and ultimately graduate from the CAATE-accredited Athletic Training Program at Marshall University.

Learning Outcomes: *Upon completion of this course, the student will be able to:*	*How students will practice each outcome in this Course:*	*How student achievement of each outcome will be assessed in this Course:*
Describe the orthopedic evaluation of musculoskeletal injuries as a systematic process.	* In-class discussions * Group assignments	* Oral/Practical Exams * Written Exams
Demonstrate the proper assessment techniques, utilizing critical thinking skills used in head, cervical spine, and upper extremity injury assessment, including the evaluation process (HOPS), bony and soft tissue palpation, range of motion testing, manual muscle testing, neurological testing, and special/stress testing techniques.	* Labs * Clinical proficiency assessments	* Oral/Practical Exams * Written Exams * Research project
Identify proper injury treatment/management techniques, utilizing critical thinking skills, required for different athletic injuries associated with the head, cervical spine, shoulder, elbow, wrist, and hand/fingers.	* In-class discussions * Group assignments * Labs	* Oral/Practical Exams * Written Exams * Research project

Understand the common mechanisms of injury involved with each structure associated with the head, cervical spine, shoulder, elbow, wrist, and hand/fingers.	* In-class discussions * Group assignments	* Written Exams * Research project
Understand the influence of posture and throwing upon the predisposition and management of injuries to the upper extremity.	* In-class discussions * Labs * Clinical proficiency assignments	* Oral/Practical Exams * Written Exams * Outside of class assignments
Demonstrate the ability to carry out typical administrative responsibilities associated with lower extremity assessment such as documentation and record keeping.	In-class discussions	* Outside of class assignments
Demonstrate an understanding of the ethical roles and responsibilities of the BOC-Certified Athletic Trainer (ATC) as they pertain to the assessment of lower extremity injuries.	In-class discussions	* Outside of class assignments

All course outcomes MUST be met for the student to PASS this course of study. Failure to show competency in ANY of the above outcomes will result in a failing grade.

**Specific educational competencies and clinical proficiencies that will be met in this course will be posted on Blackboard.*

HOW DO STUDENTS ACHIEVE THESE OUTCOMES?

Students can achieve these outcomes in many ways. First of all, students must consistently participate in class and lab assignments, discussions, projects, and related clinical assignments. It MUST be understood that completion and understanding of these outcomes is not attainable without your participation. Students will take written exams and oral/practical exams that assess your ability in the seven (7) major outcomes for this course. Students will be assessed on specific clinical proficiencies associated with related psychomotor skills, as well as completing written assignments based upon questions or concepts that relate directly to the course outcomes and competencies.

HOW DO STUDENTS DEMONSTRATE THEY ARE COMPETENT IN THE DESIRED OUTCOMES?

All through the course and on each MAJOR ASSESSMENT, the class instructor and the clinical preceptors (CPs) will assign students a level of competency (percentage) they believe reflects how well you achieved the outcome. Your final grade will be based upon how well you have achieved EACH individual outcome in the course. Your FINAL assessments in this course will contain structured questions and skill demonstration scenarios that will reflect whether you have successfully met ALL seven major outcomes of the course.

The tests or MAJOR ASSESSMENTS (i.e., written and oral/practical exams) will contain questions designed to enable the class instructor and ACIs to evaluate your performance and understanding of the outcomes. The instructor has designed this course with assessment "bench marks" for his use. All assignments and/or projects given to students in this course will be assessed. Students will be given a certain standard to meet on these assessments, and the data recorded will demonstrate to the instructor whether the students understand the competencies at hand and are ready to progress to the

next set of competencies or clinical proficiencies. It is important students understand they are entering a field of study that requires them to do more than merely memorize/know material and concepts. Students MUST be able to apply this knowledge and course concepts to "real world situations" and make critical decisions as well as perform perfect clinical skills to insure quality health care and injury prevention of the physically active individual you will be responsible for. It is your goal as the student, therefore, to perform to your best ability on all assignments in order to become the best Athletic Training/ Sports Medicine professional you can be.

Placement/Credits:

This four (4) credit hour course will be offered to ELM-AT students during the fall semester of their first year. Completion of this course, with a "C" or better is necessary for continuing in the required curriculum sequence and for completion of the Marshall University Entry-Level Masters of Science in Athletic Training Program.

Required Texts*:

1. *Examination of Musculoskeletal Injuries (3rd ed.); Shultz, Houglum, & Perrin, 2010.
2. *Orthopedic & Athletic Injury Evaluation Handbook (2nd ed); Starkey, Brown, & Ryan, 2010.
3. Upper Extremity Injury Evaluation CD and Activity Manual; Mann & Grugan, 2010.
4. Daniels and Worthingham's Muscle Testing: Techniques of Manual Examination (8th ed.); Hislop & Montgomery, 2007. (optional)
5. Orthopedic & Athletic Injury Evaluation Handbook (2nd ed); Starkey et al, 2009. (optional)
6. The Clinical Measurement of Joint Motion; American Academy of Orthopaedic Surgeons. (optional)
7. Special Tests for Orthopedic Examination (3rd ed); Konin, Wiksten, Isear, and Brader, 2006. (optional)
8. Physical Examination of the Spine and Extremities; Hoppenfeld, 1976. (optional)

**The above texts will also be used for two additional evaluation courses, in addition to the associated practicum courses, with the exception of one text.*

ATTENDANCE & PARTICIPATION

Attendance and participation is expected and will be rewarded by enhanced learning, deepened content mastery, and the potential for more beneficial relationships with peers and faculty. This course is designed for active learners who are motivated, willing, and capable of meeting their responsibilities for learning. Missing classes is incongruent with being able to successfully meet the outcomes for this course in a timely and effective manner. Therefore, after the second unexcused class absence, the student's final letter grade will be deducted by a ½ letter grade. Further letter grade deductions will be made for additional, unexcused absences from class. Students with perfect attendance will have the greatest opportunity to earn the highest grades for this course and will be rewarded with points (see below). In the event the student is absent for official school business, the student will receive no penalty for the absence. Your participation in class discussion, activities, individual and group projects, and other assignments will be critical in your understanding and performance of the outcomes of this course, and subsequently enhance your grade in this course.

The attendance of each student will be reviewed throughout the course. Student absences will be posted on Blackboard for the course in a format that can be accessed by students at any point. Students with fewer than two absences will have the greatest opportunity to earn the highest grades for the course.

Other related comments regarding HS 523:

- Bring your book(s) to class every time we meet. Students will be responsible for reading assigned pages from the book prior to class and for completing in-class assignments.
- When missing a class (excused or unexcused), be responsible and courteous to call my office and leave a detailed message. You may also e-mail me. I will offer you the same courtesy if I am unable to attend class.
- In the event of an emergency, serious illness, death in the family, etc, all work must be completed within **one week** of the absence.
- For absence due to a school-sponsored function, all work must be completed and submitted **prior to** the class that will be missed.
- Work made up for an unexcused absence must be submitted within one week of the original due date and will be subject to a **20% reduction** in the score.
- Work submitted one week or more after the original due date will **not be accepted** and a score of zero "0" will be the resulting grade for the assignment/exam.
- The final grade of an Incomplete "I" will be given only in extreme and unavoidable situations. Keep in mind that you cannot register for subsequent courses in the ATP with an Incomplete in HS 524.
- The University's policy on academic dishonesty and cheating will be strictly adhered to and enforced at all times. Cheating, plagiarism, fabrication, or facilitating academic dishonesty will not be tolerated and will result in an "F" in the course.
- All members of the course (and the Radford University community) are responsible for promoting and protecting academic integrity.
- The use of cell phones, or other electronic devices, is *strictly prohibited* during class. All phones must be turned off so as to not disturb other students in the class or the instructor. If phones go off or if students are caught text messaging during class, the student will be asked to leave class, and he/she will receive an unexcused absence for that class.
- Falling asleep during your classes is not acceptable, especially classes in your major, as this demonstrates lack of interest to the instructor. Students caught sleeping during class will not receive participation points for that class, and may be asked to leave class if there are persistent problems with falling asleep during a class.
- Students are expected to be on time for class. The classroom door will be closed after the first five minutes of class. Students who are not in class at the proper time will receive an unexcused absence.
- Students must check D2L on a consistent basis for emails from the instructor, course assignments, etc. This should be done at least 2-3 times each week.
- Course objectives, Clinical Proficiencies, and Outcomes:
    - To satisfactory meet all objectives, clinical proficiencies, and outcomes (course and program) in this course, a minimum standard/score has been determined as listed and described in this course syllabus.
    - In order to pass the course you must meet the minimum standard.
    - If the minimum standard is not met on the first attempt you may re-attempt the assignment/exam one time at the time designated by the instructor.
    - On a re-attempt, only the minimum standard score is awarded.
- The last day to drop the course with a "W" is March 25

Social Justice: No one will be discriminated against on the basis of race, sex, ethnicity, age, sexual orientation, social class, abilities, or differing viewpoints. Each student will be viewed as a valuable part of this class.

Wireless Apparatus/Electronic Devices: All electronic devices (computers, phones, pagers, games, IPods, etc.) must be turned off at the beginning of each class unless the instructor specifically permits them for an in-class assignment. If a special circumstance arises (e.g. family emergency), notify the instructor before class to obtain permission to keep an electronic device on during class time.

Statement on learning disabilities: Reasonable accommodations will be made for students with diagnosed disabilities. Marshall University is committed to equal opportunity in education for all students, including those with physical, learning and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117, phone 304 696-2271 to provide documentation of their disability. Following this, the DSS Coordinator will send a letter to each of the student's instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing and grading. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, please visit http://www.marshall.edu/disabled or contact Disabled Student Services Office at Prichard Hall 11, phone 304-696-2271.

Honor code: Students found to have violated the honor code or plagiarize will be penalized; they will receive a zero on the assignment for the first offense; a second offense will result in a zero on the assignment and a two letter grade reduction in the course; a third offense is an automatic F in the course and recommended expulsion. The student will also be subject to dismissal from the athletic training program and/or Marshall University. For more information on Marshall's Academic Dishonesty policy go to: http://www.marshall.edu/president/board/Policies/MUBOG%20AA-12%20Academic%20Dishonesty.pdf. All offenders will be reported to the School of Kinesiology Chair and ATP Director as per the program disciplinary policy.

Computer Software Requirements**: It is required in this class to purchase or have immediate access to Microsoft Office 2003 Word application. The TRC has this program installed on all its computers. All assignments will have to be submitted via Word. (Note: Make sure your home computer has the proper system requirements so the Word program will run. Check before you purchase them.)

ASSIGNMENTS*

All assignments are expected to be turned in on the designated day, during class or via email as per the instructions provided by the instructor, or risk a reduction in points awarded for the assignment.

Outside of class Assignments: On a regular basis you will be given assignments to complete prior to class. Assignments typically require students to read material in the text and/or online and then to answer a series of questions and/or to prepare a written outline. These assignments will either be given to you in class or via e-mail and/or Blackboard. Students are expected to complete the assignment and bring it with them to class or to e-mail it to the instructor as a MS-Word attachment. These assignments will be reviewed for accuracy and meeting the deadline. Students may also be asked to present their research in an oral presentation format. Points will be awarded for meeting all the required stipulations.

Papers: *Annotated Bibliography Paper*: This paper will address common injuries of an area of the lower extremity assigned by the instructor. The emphasis must be on evaluation procedures and techniques. Specific details of this assignment will be distributed in class and posted on D2L. The Assignment is **due Wednesday, March 15** in class.

Quizzes: Unannounced quizzes may occur at any point during the course to confirm whether students are keeping up with textbook readings and reviewing course material presented by the instructor in either the classroom or lab setting. (You must score 70% pass.)

Notebook: Contains all class notes and handouts assimilated in a logical and sequenced manner. Students must use a rigid, "3-hole" notebook/binder. This notebook will be collected on at least one unannounced day during the course, in addition to final exam day. Students are encouraged to incorporate one or more of the following items into their notebook in order to receive full credit: type all class notes, use highlighter pens/markers, use tabs to separate sections of the notebook, and/or miscellaneous items not given by the instructor, but related to material presented in this course. This notebook will contain materials you will need for the remainder of your Athletic Training career (Students must score 21 on a 30 point scale). Students will also be required to maintain a separate notebook for the lab component of this course that follows a similar format as described above.

Scenarios: Several scenarios will be given to you during specific lab classes in which you will be asked to perform a specific clinical proficiency correctly or to perform the proper injury evaluation. Critical thinking will be required to complete this section. Be sure to practice clinical skills and to follow the HOPS method of evaluation (A score of 2-3 is required on the critical thinking rubric to PASS each of the scenarios).

Clinical Proficiency Assessments: As part of this course, students will learn how to perform over 125 clinical skills related to evaluation of the head, cervical spine, shoulder, elbow, wrist, hand, and fingers. Students will first learn these clinical skills in the lab course, and then will be expected to practice these skills with classmates in lab class, outside of class, and during their clinical rotations in order to become proficient on them. At designated times during the semester students will be expected to submit various "clinical proficiency packets" to the instructor, which demonstrate your understanding of these

specific clinical skills. Failure to submit these assessments by the due date given by the instructor, will lead to points being deducted for this assignment.

Labs: On Wednesdays from 10-11:50am, lab classes will be held to help students learn and develop the specific psychomotor competencies and clinical proficiencies related to the evaluation of lower extremity and lumbar spine injuries. Students are expected to dress in clothing that will allow you to evaluate (and be evaluated by other students) any or all of the lower extremities. Students will spend a significant amount of time practicing and becoming proficient on the clinical skills first demonstrated by the instructor. Please note that some clinical skills take longer than others to learn and become proficient on depending upon the student and the difficulty of the skill. Therefore, make sure you allocate the entire lab period for practice of these skills. Moreover, there will be a number of oral/practical exams to determine if students are ready to proceed to the next section. Students must obtain a minimum of 80% to be considered passing on each of these O/P exams.

O/P exams: Oral/practical exams will be given approximately three times during the semester. Each one will include sections from the previous modules. You must pass each module with a minimum score of 70% to proceed to the next section. O/P's along with the written exam are considered to be MAJOR ASSESSMENTS for this course.

Exams: There will be seven MAJOR ASSESSMENTS within this course of study, including three written exams, three oral/practical exams, and one research project. Specific outcomes to which these major assessments will be evaluated will be explained to the student in advance of the exam or project date. You must pass each outcome covered on each MAJOR ASSESSMENT with a 70% standard to pass this course!

Lab Manual Assignments: Please next page for details on these assignments.

PROJECT/ASSIGNMENT*	***POINTS POSSIBLE***
Attendance	30
Participation	15
Reviewed outside-of-class assignments	150
Lab manual assignments (see handout for details)	200
Miscellaneous (Quizzes, Labs, Etc.)	75
Written Exam I	135
Oral/Practical Exam I	90
Written Exam II	150
Oral/Practical Exam II	165
Oral/Practical Exam III	200
Final Written Exam	180
Clinical Proficiencies	130
Annotated Bibliography	75
Notebook (Lecture)	30
Notebook (Lab)	20

** = additional details to be presented in class*

Total Points Possible = 1600

Grading Scale:

A = 90 – 100%. This grade shows evidence of OUTSTANDING performance and/or understanding of the complete outcome being assessed. *(1650-1485 points)*

B = 80 – 89%. This grade shows evidence of ABOVE AVERAGE performance and/or understanding of the complete outcome being assessed. *(1484-1320 points)*

C = 70 – 79%. This grade shows evidence of AVERAGE performance and/or understanding of the complete outcome being assessed. *(1319-1155 points)*

D = 60 – 69%. This grade shows evidence of BELOW AVERAGE performance and/or understanding of the complete outcome being assessed. *(1154-990 points)*

F = Below 60%. This grade shows evidence of UNACCEPTABLE performance and/or understanding of the complete outcome being assessed. *(989 points and below)*

HS 523 Tentative Lecture Schedule (Spring '17 draft)

HS 523 Tentative Lab Schedule

Week 1 Review Syllabus, Terminology, Review of HOPS
Documentation of Injuries
SHP Chapters 1-7, 10
Manual Muscle Testing and Goniometry (Review)

Week 2 Head and Face Evaluation
SHP Chapter 19
Clinical Skills for Head and Neck Evaluation

Week 3 Exam of the Unconscious Athlete
Upper Quarter Neurological Evaluation
SHP Chapter 8
MMT and Goniometry of Cervical and Thoracic Spines

Week 4 Cervical and Upper Thoracic Spine Evaluation
SHP Chapter 11
DTRs, Myotomes, and Dermatomes

Week 5 Catch up, Review for test and *Exam #1*
Shoulder & Scapular MMT, and Goniometry

Week 6 Shoulder Evaluation
SHP Chapter 12
Clinical Skill Testing

Week 7 Shoulder Evaluation
SHP Chapter 12
Shoulder Special Tests

Week 8 Shoulder Evaluation
SHP Chapter 12
Shoulder Special Tests

Week 9 Elbow & Forearm Evaluation
SHP Chapter 13
Clinical Skill Testing

Week 10	Catch up, Review for test and *Exam #2* Elbow MMT and Goniometry Elbow Special Tests
Week 11	Hand, Wrist, and Fingers Evaluation *SHP Chapter 14* Wrist & Fingers MMT and Goniometry
Week 12	Hand, Wrist, and Fingers Evaluation *SHP Chapter 14* (Occupational Therapist or Physical Therapist TBA) Wrist & Fingers Special Tests
Week 13	Throwing Assessment, Injuries Associated with Throwing Posture Assessment, Injuries Associated with Posture DTRs, Myotomes, Dermatomes
Week 14	Catch-up Review for test and *Exam #3* Open Lab
Week 15	Catch-up Clinical Skill Testing
FINAL EXAM	TBD

******The instructor reserves the right to make any changes/additions to the syllabus. Students are responsible for making changes to their personal copy of the syllabus.***

MARSHALL UNIVERSITY
College of Health Professions
School of Kinesiology
Athletic Training Program
HS 523 Lab – Spring 2017
Orthopedic Assessment of the Upper Extremity for Athletic Trainers Lab

Instructor: Dr. Joe Beckett, ATC

Contact Info: (304) 696-2929 (O) (859) 248-9582 (Cell 7-10 pm)
Beckett76@marshall.edu

Time/Days: TBD

Room: ATP Lab

Course description: This course is a laboratory section to complement the lecture section of HS 523. Emphasis will be placed on the practical application of anatomy identification, manual muscle testing, special testing, goniometric measurements, and neurological assessments of the head, cervical spine, and upper extremities. Techniques used to evaluate injuries both in the clinical setting as well as on the athletic field will be practiced. Documentation of injuries will also be reinforced.

Required Texts*:

1. **Examination of Musculoskeletal Injuries (3rd ed);* Shultz, Houglum, & Perrin, 2010.
2. **Lower Extremity Injury Evaluation CD and Activity Manual*; Mann & Grugan, 2010.
3. *Daniels and Worthingham's Muscle Testing: Techniques of Manual Examination (8th ed);* Hislop & Montgomery, 2007. (optional)
4. *Orthopedic & Athletic Injury Evaluation Handbook*; Starkey & Ray, 2003.
5. *Special Tests for Orthopedic Examination (3rd ed);* Konin, Wiksten, Isear, & Brader, 2006. (optional)
6. *Physical Examination of the Spine and Extremities;* Hoppenfield, 1976 (optional)

**The above texts will also be used for the HS 524 course, Orthopedic Assessment of the Lower Extremity for Athletic Trainers, with the exception of one text.*

Outcomes: Information and specific details about outcomes is presented in the HS 524 syllabus. The same criteria regarding achievement of the outcomes and how students demonstrate they are competent in the desired outcome will also be used for this lab course.

Course Objectives: After completion of the course, students will be able to:

1) Identify bony, soft, and nervous tissue anatomy.
2) Perform specific orthopedic tests to determine the extent of injury.
3) Use assessment tools to measure range of motion and posture.
4) Perform appropriate manual muscle tests and assigning a grade.

5) Utilize documentation techniques for the recording of specific injuries.
6) Develop a systematic approach to the evaluation process.
7) Recognize severe and life threatening conditions and refer athletes to a physician.

Other Course Policy Notes: The other policies described in the HS 523 syllabus regarding attendance and participation, academic dishonesty, cell phone usage, dress code for class, University policies, and grading scale will also be used and enforced in this course. Students will be notified at mid-term and periodically throughout the semester of their current academic standing. Methods of notification will be verbally through individual conference, written, and/or via e-mail. All methods will be kept confidential.

ASSIGNMENTS

All assignments are expected to be turned in on the designated day, during class, or risk a reduction in points awarded for the assignment.

Outside of class Assignments: On a regular basis you will be given assignments to complete prior to specific lab classes. Assignments typically require students to read material in one of more of the texts and/or online and then to prepare a brief oral presentation and demonstration for lab class. These assignments will either be given to you in class or via Blackboard. Students are expected to complete the assignment and bring it with them to class or to e-mail it back to the instructor as a MS-Word attachment. These assignments will be reviewed for accuracy and meeting the deadline. Points will be awarded for meeting these two stipulations.

Scenarios: Several scenarios will be given to you during specific lab classes in which you will be asked to perform a specific clinical proficiency correctly or to perform the proper injury evaluation. Critical thinking will be required to complete this section. Be sure to practice clinical skills and to follow the HOPS method of evaluation (Reflection will be graded using the designated critical thinking rubric, and a score of 2-3 is required to PASS the scenarios).

Labs: Every Wednesday from 10:00-11:50 lab classes will be held to help you learn and develop the specific psychomotor competencies and clinical skills related to the evaluation of lower extremity and lumbar spine injuries. Students are expected to dress in clothing that will allow them to evaluate (and be evaluated by other students') any or all of the lower extremities. Students will spend a significant amount of time practicing and becoming proficient on the clinical skills first demonstrated by the instructor. Please note that some clinical skills take longer than others to learn and become proficient on depending upon the student. Therefore, make sure you allocate the entire lab period for practice of these skills.

O/P exams: Oral/practical exams will be given approximately 3 times during the semester. Each exam could include materials from previous classes/labs. You must pass each exam with at least a 80% to proceed to the next section. O/P's along with the written exam and research project are considered to be your MAJOR ASSESSMENTS for this course. O/P exams will be given after the completion of each content area and the scores will be totaled with the lecture portion of the class (NOTE: the points for the O/P exams are stated in the HS 524 syllabus).

HS 523 Tentative Lab Schedule

Weeks 1-3	Clinical Skills for Head and Neck Evaluation DTRs, Myotomes, and Dermatomes
Week 4	Clinical Skill Testing
Week 5	MMT and Goniometry of Cervical and Thoracic Spines Shoulder & Scapular MMT, and Goniometry
Weeks 6-8	Clinical Skills for Shoulder Evaluation (Palpation, MMT, Goniometry, Special Tests)
Week 9	Clinical Skill Testing
Week 10	Clinical Skills for Elbow Evaluation (Palpation, MMT, Goniometry, Special Tests)
Week s 11-12	Clinical Skills for Wrist, Hand, Fingers Evaluation (Palpation, MMT, Goniometry, Special Tests)
Week 13	Throwing Evaluation Lab
Week 14	Open Lab Review for Final Oral/Practical Exam
Week 15	Clinical Skill Testing

******The instructor reserves the right to make any changes/additions to this syllabus. Students are responsible for making changes to their personal copy of the syllabus.***

Request for Graduate Course Change-Page 4

College: COHP

Department: School of Kinesiology

Course Number/Title HS 523, Orthopedic Assessment of the Upper Extremity for Athletic Trainers

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.

Not applicable

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

Request for Graduate Course Change - Page 5

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 CREDIT HOURS CHANGE
Department: School of Kinesiology
Current Course Number/Title: HS 523, Orthopedic Assessment of the Upper Extremity for Athletic Trainers
New Course Number:
Rationale: A separate lab component of this course is needed, so the instructor has adequate and appropriate time to teach students all the associated clinical skills/competencies embedded in this course (NOTE: because HS 522, Orthopedic Skills and Procedures, will be deleted from the ELM-AT program, there is room within the program to make this change).
Catalog Description: Orthopedic evaluation of the neck and upper extremity for the Athletic Trainer
Credit hours: 4

Chair: Tracy Christofero | **GC#7: Course Change**

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: COHP Dept/Division: School of Kinesiolog Current Alpha Designator/Number: HS 524

Contact Person: Joseph A. Beckett, EdD, ATC Phone: 304-696-2929

CURRENT COURSE DATA:

Course Title: Orthopedic Assessment of the Lower Extremity for Athletic Trainers

Alpha Designator/Number: H S 5 2 4

Title Abbreviation: O R T H O A S S E S S O F L O W E R E X T

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 10/20/14
Registrar Roberta Ferguson	Date 10/22/14
College Curriculum Chair Tammy Graziano	Date 10/23/14
Graduate Council Chair Christofero	Date 2-13-15

Request for Graduate Course Change - Page 2

College: COHP | Department/Division: School of Kinesiology | Alpha Designator/Number: HS 524

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: 3 credit hours

To: 4 credit hours - a separate lab component of this course is needed, so the instructor has adequate and appropriate time to teach students all the associated clinical skills/competencies embedded in this course (NOTE: because HS 522, Orthopedic Skills and Procedures, will be deleted from the ELM-AT program, there is room within the program to make this change).

Change in COURSE CONTENT: ☐ YES ☒ NO (May attach separate page if needed)

From: Please refer to current HS 424 syllabus attached

To: Please refer to "new" HS 524 and HS 524 lab syllabi attached (NOTE: there is a separate syllabus for lecture and lab attached)

Rationale: A separate lab component of this course is needed, so the instructor has adequate and appropriate time to teach students all the associated clinical skills/competencies embedded in this course.

Marshall University
Athletic Training Program
HS 424 – Fall 2014 (3 credit hours)
Orthopedic Evaluation of the Lower Extremity for the Athletic Trainer

Instructor: Dr. Joe Beckett, ATC

Contact Info: 304-696-2929 (O) (859) 248-9582 (Cell 7-10 pm)
Beckett76@marshall.edu Can also send text to this #
Gullickson 203-E Office hours posted on door

Time/Days: 8:00 – 9:15 TTh (Lecture) **Room:** Gullickson 203 (Lecture)
TBD (Lab) ATP LAB

Catalog Description: Orthopedic evaluation techniques of the back and lower extremity for the Athletic Trainer.

Course Overview: This course entails the study of evaluation techniques of injuries to the lower extremities and lower back. Review of anatomy, injury recognition, muscle testing, treatment protocols and preventative measures are also examined. Classroom and skill laboratory sessions are designed to introduce the learner to proper evaluation techniques of the lower extremity that are needed in the various athletic training settings. Three hours lecture, two hours laboratory.

WHAT IS AN OUTCOME?
An outcome is what a student MUST achieve in this course in order to be considered competent enough to advance to higher level Athletic Training courses and ultimately graduate from the CAATE-accredited Athletic Training Program at Marshall University.

Learning Outcomes: ***Upon completion of this course, the student will be able to:***	***How students will practice each outcome in this Course:***	***How student achievement of each outcome will be assessed in this Course:***
Describe the orthopedic evaluation of musculoskeletal injuries as a systematic process.	* In-class discussions * Group assignments	* Oral/Practical Exams * Written Exams
Demonstrate the proper assessment techniques, utilizing critical thinking skills used in lower extremity injury assessment, including the evaluation process (HOPS), bony and soft tissue palpation, range of motion testing, manual muscle testing, neurological testing, and special/stress testing techniques.	* Labs * Clinical proficiency assessments	* Oral/Practical Exams * Written Exams * Research project
Identify proper injury treatment/management techniques, utilizing critical thinking skills, required for different athletic injuries associated with the hip/pelvis, thigh, knee, ankle/lower leg, and foot/toes.	* In-class discussions * Group assignments * Labs	* Oral/Practical Exams * Written Exams * Research project

Understand the common mechanisms of injury involved with each structure associated with the lower extremities, including the hip/pelvis, thigh, knee, ankle/lower leg, and foot/toes.	* In-class discussions * Group assignments	* Written Exams * Research project
Understand the influence of posture and gait upon the predisposition and management of injuries to the lower extremity.	* In-class discussions * Labs * Clinical proficiency assignments	* Oral/Practical Exams * Written Exams * Outside of class assignments
Demonstrate the ability to carry out typical administrative responsibilities associated with lower extremity assessment such as documentation and record keeping.	In-class discussions	* Outside of class assignments
Demonstrate an understanding of the ethical roles and responsibilities of the BOC-Certified Athletic Trainer (ATC) as they pertain to the assessment of lower extremity injuries.	In-class discussions	* Outside of class assignments

All course outcomes MUST be met for the student to PASS this course of study. Failure to show competency in ANY of the above outcomes will result in a failing grade.

**Specific educational competencies and clinical proficiencies that will be met in this course will be posted on Blackboard.*

HOW DO STUDENTS ACHIEVE THESE OUTCOMES?

Students can achieve these outcomes in many ways. First of all, students must consistently participate in class and lab assignments, discussions, projects, and related clinical assignments. It MUST be understood that completion and understanding of these outcomes is not attainable without your participation. Students will take written exams and oral/practical exams that assess your ability in the seven (7) major outcomes for this course. Students will be assessed on specific clinical proficiencies associated with related psychomotor skills, as well as completing written assignments based upon questions or concepts that relate directly to the course outcomes and competencies.

HOW DO STUDENTS DEMONSTRATE THEY ARE COMPETENT IN THE DESIRED OUTCOMES?

All through the course and on each MAJOR ASSESSMENT, the class instructor and the clinical preceptors (CPs) will assign students a level of competency (percentage) they believe reflects how well you achieved the outcome. Your final grade will be based upon how well you have achieved EACH individual outcome in the course. Your FINAL assessments in this course will contain structured questions and skill demonstration scenarios that will reflect whether you have successfully met ALL seven major outcomes of the course.

The tests or MAJOR ASSESSMENTS (i.e., written and oral/practical exams) will contain questions designed to enable the class instructor and clinical preceptors to evaluate your performance and understanding of the outcomes. The instructor has designed this course with assessment "bench marks" for his use. All assignments and/or projects given to students in this course will be assessed. Students will be given a certain standard to meet on these assessments, and the data recorded will demonstrate

to the instructor whether the students understand the competencies at hand and are ready to progress to the next set of competencies or clinical proficiencies. It is important students understand they are entering a field of study that requires them to do more than merely memorize/know material and concepts. Students MUST be able to apply this knowledge and course concepts to "real world situations" and make critical decisions as well as perform perfect clinical skills to insure quality health care and injury prevention of the physically active individual you will be responsible for. It is your goal as the student, therefore, to perform to your best ability on all assignments in order to become the best Athletic Training/ Sports Medicine professional you can be.

All course outcomes MUST be met for the student to PASS this course of study. Failure to show competency in ANY of the above outcomes will result in a failing grade.

Placement/Credits:

This three (3) credit hour course will be offered fall semester of the junior year. Completion of this course, with a "C" or better is necessary for continuing in the required curriculum sequence and for completion of the Marshall University Athletic Training Program.

Required Texts*:

1. Examination of Musculoskeletal Injuries (3rd ed.); Shultz, Houglum, & Perrin, 2010.
2. Orthopedic & Athletic Injury Evaluation Handbook (2nd ed); Starkey et al, 2010.

Other texts used and recommended by the Instructor:

1. Evaluation of Orthopedic and Athletic Injuries (3rd ed); Starkey, Brown, & Ryan, 2010.
2. Lower Extremity Injury Evaluation CD and Activity Manual; Mann & Grugan, 2010.
3. Daniels and Worthingham's Muscle Testing: Techniques of Manual Examination; Hislop & Montgomery, 8th ed., 2007.
4. Functional Anatomy: Musculoskeletal Anatomy, Kinesiology, and Palpation for Manual Therapists; Cael, 2010.
5. Special Tests for Orthopedic Examination (3rd ed); Konin, Wiksten, & Isear, 2006.
6. Physical Examination of the Spine and Extremities; Hoppenfield, 1976.
7. Ortho Notes, Clinical Examination Pocket Guide (2nd ed); Gulick, D, 2009.

**The above texts will also be used for the HS 423 course, "Orthopedic Evaluation of the Upper Extremity for the Athletic Trainer", in addition to the associated practicum courses, with the exception of one text.*

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.

ATTENDANCE & PARTICIPATION

Attendance and participation is expected and will be rewarded by enhanced learning, deepened content mastery, and the potential for more beneficial relationships with peers and faculty. This course is designed for active learners who are motivated, willing, and capable of meeting their responsibilities for learning. Missing classes is incongruent with being able to successfully meet the outcomes for this course in a timely and effective manner. Therefore, after the second unexcused class absence, the student's final letter grade will be deducted by a ½ letter grade. Further letter grade deductions will be made for additional, unexcused absences from class. Students with perfect attendance will have the greatest opportunity to earn the highest grades for this course and will be rewarded with points (see below). In the event the student is absent for official school business, the student will receive no penalty for the absence. Your participation in class discussion, activities, individual and group projects, and other assignments will be critical in your understanding and performance of the outcomes of this course, and subsequently enhance your grade in this course. Other comments regarding attendance include the following:

- Qualified excused absences include: illness, family crisis, or approved institutional activity. If you miss class due to an acute illness, you must bring a note from your physician for an excused absence (note: this does NOT include routine medical appointments unless of a special nature and only then with prior written notice and approval). Students have one week to provide appropriate documentation to excuse an absence. The student is expected to have a personal schedule appropriate for class attendance.
- Written Exams/Oral-Practical Exams: must be taken on or before their scheduled date. Students who miss an exam/practical due to approved unforeseen circumstances have a maximum of one week to make it up (those missed without an excuse will receive a grade of zero).

- Absenteeism at class will have the following effect on your grade: 5 points off participation grade for *each* absence; two tardies (5-10 minutes) count as an absence (10+ minutes is an absence—you are welcome to stay and learn); five cumulative *unexcused* absences will result in your being dropped from the course.

The attendance of each student will be reviewed throughout the course. Student absences will be posted on Blackboard for the course in a format that can be accessed by students at any point. Students with fewer than two absences will have the greatest opportunity to earn the highest grades for the course.

Social Justice: No one will be discriminated against on the basis of race, sex, ethnicity, age, sexual orientation, social class, abilities, or differing viewpoints. Each student will be viewed as a valuable part of this class.

Wireless Apparatus/Electronic Devices: All electronic devices (computers, phones, pagers, games, IPods, etc.) must be turned off at the beginning of each class unless the instructor specifically permits them for an in-class assignment. If a special circumstance arises (e.g. family emergency), notify the instructor before class to obtain permission to keep an electronic device on during class time.

Statement on learning disabilities: Reasonable accommodations will be made for students with diagnosed disabilities. Marshall University is committed to equal opportunity in education for all students, including those with physical, learning and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117, phone 304 696-2271 to provide documentation of their disability. Following this, the DSS Coordinator will send a letter to each of the student's instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing and grading. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, please visit http://www.marshall.edu/disabled or contact Disabled Student Services Office at Prichard Hall 11, phone 304-696-2271.

Honor code: Students found to have violated the honor code or plagiarize will be penalized; they will receive a zero on the assignment for the first offense; a second offense will result in a zero on the assignment and a two letter grade reduction in the course; a third offense is an automatic F in the course and recommended expulsion. The student will also be subject to dismissal from the athletic training program and/or Marshall University. For more information on Marshall's Academic Dishonesty policy go to: http://www.marshall.edu/president/board/Policies/MUBOG%20AA-12%20Academic%20Dishonesty.pdf. All offenders will be reported to the School of Kinesiology Chair and ATP Director as per the program disciplinary policy.

Other related comments regarding HS 424:

- Bring your book(s) to class every time we meet. Students will be responsible for reading assigned pages from the book prior to class and for completing in-class assignments.
- When missing a class (excused or unexcused), be responsible and courteous to call my office and leave a detailed message. You may also e-mail me. I will offer you the same courtesy if I am unable to attend class.
- In the event of an emergency, serious illness, death in the family, etc, all work must be completed within **one week** of the absence.
- For absence due to a school-sponsored function, all work must be completed and submitted **prior to** the class that will be missed.
- Work made up for an unexcused absence must be submitted within one week of the original due date and will be subject to a **20% reduction** in the score.
- Work submitted one week or more after the original due date will **not be accepted** and a score of zero "0" will be the resulting grade for the assignment/exam.
- The final grade of an Incomplete "I" will be given only in extreme and unavoidable situations. Keep in mind that you cannot register for subsequent courses in the ATP with an Incomplete in HS 424.
- The University's policy on academic dishonesty and cheating will be strictly adhered to and enforced at all times. Cheating, plagiarism, fabrication, or facilitating academic dishonesty will not be tolerated and will result in an "F" in the course.
- All members of the course (and the Marshall University community) are responsible for promoting and protecting academic integrity.
- The use of cell phones, or other electronic devices, is *strictly prohibited* during class. All phones must be turned off so as to not disturb other students in the class or the instructor. If phones go off or if students are caught text messaging during class, the student will be asked to leave class, and he/she will receive an unexcused absence for that class.

- Falling asleep during your classes is not acceptable, especially classes in your major, as this demonstrates lack of interest to the instructor. Students caught sleeping during class will not receive participation points for that class, and may be asked to leave class if there are persistent problems with falling asleep during a class.
- Students are expected to be on time for class. The classroom door will be closed after the first five minutes of class. Students who are not in class at the proper time will receive an unexcused absence.
- Students must check Blackboard on a consistent basis for emails from the instructor, course assignments, etc. This should be done at least 2-3 times each week.
- Course objectives, Clinical Proficiencies, and Outcomes:
    - To satisfactory meet all objectives, clinical proficiencies, and outcomes (course and program) in this course, a minimum standard/score has been determined as listed and described in this course syllabus.
    - In order to pass the course you must meet the minimum standard.
    - If the minimum standard is not met on the first attempt you may re-attempt the assignment/exam one time at the time designated by the instructor.
    - On a re-attempt, only the minimum standard score is awarded.
- The last day to drop the course with a "W" is October 31

ASSIGNMENTS*

All assignments are expected to be turned in on the designated day, during class or via email as per the instructions provided by the instructor, or risk a reduction in points awarded for the assignment.

Outside of class Assignments: On a regular basis you will be given assignments to complete prior to class. Assignments typically require students to read material in the text and/or online and then to answer a series of questions and/or to prepare a written outline. These assignments will either be given to you in class or via e-mail and/or Blackboard. Students are expected to complete the assignment and bring it with them to class or to e-mail it to the instructor as a MS-Word attachment. These assignments will be reviewed for accuracy and meeting the deadline. Students may also be asked to present their research in an oral presentation format. Points will be awarded for meeting all the required stipulations.

Papers: *Annotated Bibliography Paper*: This paper will address common injuries of an area of the lower extremity assigned by the instructor. The emphasis must be on evaluation procedures and techniques. Specific details of this assignment will be distributed in class and posted on Blackboard. The Assignment is **due Wednesday, October 31** in class.

Quizzes: Unannounced quizzes may occur at any point during the course to confirm whether students are keeping up with textbook readings and reviewing course material presented by the instructor in either the classroom or lab setting. (You must score 70% pass.)

Notebook: Contains all class notes, handouts, and other course materials assimilated in a logical and sequenced manner. To complete this assignment, students may elect to choose one of two options. For option one, students must use a rigid, "3-hole" notebook/binder to insert and organize these documents. Students are encouraged to incorporate one or more of the

following items into their notebook in order to receive full credit: type all class notes, use highlighter pens/markers, use tabs to separate sections of the notebook, and/or miscellaneous items not given by the instructor, but related to material presented in this course. For option two, students will organize all course materials in an electronic format on a flash drive. Folders and subfolders should be developed to organize these materials, and class handouts should be typed as well. This notebook/flash drive will contain materials you will need for the remainder of your Athletic Training career in an easily accessible format.

Scenarios: Several scenarios will be given to you during specific lab classes in which you will be asked to perform a specific clinical proficiency correctly or to perform the proper injury evaluation. Critical thinking will be required to complete this section. Be sure to practice clinical skills and to follow the HOPS method of evaluation (A score of 2-3 is required on the critical thinking rubric to PASS each of the scenarios).

Clinical Proficiency Assessments: As part of this course, students will learn how to perform approximately 130 clinical skills related to evaluation of the foot, ankle, lower leg, knee, thigh, hip, pelvis, sacrum, and lumbar spine. Students will first learn these clinical skills in the lab course, and then will be expected to practice these skills with classmates in lab class, outside of class, and during their clinical rotations in order to become proficient on them. At designated times during the semester students will be expected to submit various "clinical proficiency packets" to the instructor, which demonstrate your understanding of these specific clinical skills. Failure to submit these assessments by the due date given by the instructor, will lead to points being deducted for this assignment.

Labs: Lab classes will be held during designated class time to help students learn and develop the specific psychomotor competencies and clinical proficiencies related to the evaluation of lower extremity and lumbar spine injuries. Students are expected to dress in clothing that will allow you to evaluate (and be evaluated by other students) any or all of the lower extremities. Students will spend a significant amount of time practicing and becoming proficient on the clinical skills first demonstrated by the instructor. Please note that some clinical skills take longer than others to learn and become proficient on depending upon the student and the difficulty of the skill. Therefore, make sure you allocate the entire lab period for practice of these skills. Moreover, there will be a number of oral/practical exams to determine if students are ready to proceed to the next section. Students must obtain a minimum of 80% to be considered passing on each of these O/P exams.

O/P exams: Oral/practical exams will be given approximately three times during the semester. Each one will include sections from the previous modules. You must pass each module with a minimum score of 70% to proceed to the next section. O/P's along with the written exam are considered to be MAJOR ASSESSMENTS for this course.

Exams: There will be seven MAJOR ASSESSMENTS within this course of study, including three written exams, three oral/practical exams, and one research project. Specific outcomes to which these major assessments will be evaluated will be explained to the student in advance of the exam or project date. You must pass each outcome covered on each MAJOR ASSESSMENT with a 70% standard to pass this course!

PROJECT/ASSIGNMENT*	***POINTS POSSIBLE***
Attendance	30
Participation	15
Reviewed outside-of-class assignments	200
Miscellaneous (Quizzes, Labs, Etc.)	75
Written Exam I	125
Oral/Practical Exam I	90
Written Exam II	150
Oral/Practical Exam II	165
Written Exam III	175
Oral/Practical Exam III	200
Final Written Exam	220
Clinical Proficiencies	130
Annotated Bibliography	75
Notebook (Lecture)	30
Notebook (Lab)	20

** = additional details to be presented in class* **Total Points Possible = 1700**

Grading Scale:

A = 90 – 100%. This grade shows evidence of OUTSTANDING performance and/or understanding of the complete outcome being assessed. *(1700-1530 points)*

B = 80 – 89%. This grade shows evidence of ABOVE AVERAGE performance and/or understanding of the complete outcome being assessed. *(1529-1360 points)*

C = 70 – 79%. This grade shows evidence of AVERAGE performance and/or understanding of the complete outcome being assessed. *(1359-1190 points)*

D = 60 – 69%. This grade shows evidence of BELOW AVERAGE performance and/or understanding of the complete outcome being assessed. *(1189-1020 points)*

F = Below 60%. This grade shows evidence of UNACCEPTABLE performance and/or understanding of the complete outcome being assessed. *(1019 points and below)*

HS 424
Tentative Schedule

Week 1	Review Syllabus and Course Outline Anatomical Nomenclature & Injury Classifications (Chap 1) Principles of Examination (Chap 2)
Week 2	History, Observation, Palpation, Stress/Special Tests (Chaps 3-7) General Examination Strategies (Chap 10)
Weeks 3, 4, & 5	Leg, Ankle, and Foot (Chap 16) Catch up, Review for test and *Exam #1*
Weeks 6, 7, & 8	Knee and Thigh (Chap 17) *Exam #2*
Weeks 9, 10, & 11	Hip, Pelvis, and Groin (Chap 18)
Week 12	Lower Extremity Neurological Evaluation (Chap 8*)
Weeks 13 & 14	Lower Thoracic and Lumbar Spine (Chap 15)
Week 15	Gait Assessment and Injuries associated with Gait (Chap 4*) (Podiatrist or Physical Therapist TBA)
Week 16	O/P testing and review
Final Exam	Thursday, Dec. 11 (8:00-10:00)

******The instructor reserves the right to make any changes/additions to the syllabus. Students are responsible for making changes to the syllabus as directed by the instructor.***

Marshall University
College of Health Professions
School of Kinesiology
Athletic Training Program
HS 524 – Fall 2014 (4 credit hours)
Orthopedic Assessment of the Lower Extremity for Athletic Trainers

Instructor: Dr. Joe Beckett, ATC

Contact Info: 304-696-2929 (O) (859) 248-9582 (Cell 7-10 pm)
Beckett76@marshall.edu Can also send text to this #

Time/Days: TBD (Lecture) **Room:** Gullickson 203
TBD (Lab)

Course Overview: This course entails the study of evaluation techniques of injuries to the lumbar spoine and lower extremities. Review of anatomy, injury recognition, muscle testing, treatment protocols and preventative measures are also examined. Classroom and skill laboratory sessions are designed to introduce the learner to proper evaluation techniques of the lower extremity that are needed in the various athletic training settings. Three hours lecture, two hours laboratory.

WHAT IS AN OUTCOME?
An outcome is what a student MUST achieve in this course in order to be considered competent enough to advance to higher level Athletic Training courses and ultimately graduate from the CAATE-accredited Athletic Training Program at Marshall University.

Learning Outcomes: *Upon completion of this course, the student will be able to:*	*How students will practice each outcome in this Course:*	*How student achievement of each outcome will be assessed in this Course:*
Describe the orthopedic evaluation of musculoskeletal injuries as a systematic process.	* In-class discussions * Group assignments	* Oral/Practical Exams * Written Exams
Demonstrate the proper assessment techniques, utilizing critical thinking skills used in lower extremity injury assessment, including the evaluation process (HOPS), bony and soft tissue palpation, range of motion testing, manual muscle testing, neurological testing, and special/stress testing techniques.	* Labs * Clinical proficiency assessments	* Oral/Practical Exams * Written Exams * Research project
Identify proper injury treatment/management techniques, utilizing critical thinking skills, required for different athletic injuries associated with the hip/pelvis, thigh, knee, ankle/lower leg, and foot/toes.	* In-class discussions * Group assignments * Labs	* Oral/Practical Exams * Written Exams * Research project

Understand the common mechanisms of injury involved with each structure associated with the lower extremities, including the hip/pelvis, thigh, knee, ankle/lower leg, and foot/toes.	* In-class discussions * Group assignments	* Written Exams * Research project
Understand the influence of posture and gait upon the predisposition and management of injuries to the lower extremity.	* In-class discussions * Labs * Clinical proficiency assignments	* Oral/Practical Exams * Written Exams * Outside of class assignments
Demonstrate the ability to carry out typical administrative responsibilities associated with lower extremity assessment such as documentation and record keeping.	In-class discussions	* Outside of class assignments
Demonstrate an understanding of the ethical roles and responsibilities of the BOC-Certified Athletic Trainer (ATC) as they pertain to the assessment of lower extremity injuries.	In-class discussions	* Outside of class assignments

All course outcomes MUST be met for the student to PASS this course of study. Failure to show competency in ANY of the above outcomes will result in a failing grade.

**Specific educational competencies and clinical proficiencies that will be met in this course will be posted on Blackboard.*

HOW DO STUDENTS ACHIEVE THESE OUTCOMES?

Students can achieve these outcomes in many ways. First of all, students must consistently participate in class and lab assignments, discussions, projects, and related clinical assignments. It MUST be understood that completion and understanding of these outcomes is not attainable without your participation. Students will take written exams and oral/practical exams that assess your ability in the seven (7) major outcomes for this course. Students will be assessed on specific clinical proficiencies associated with related psychomotor skills, as well as completing written assignments based upon questions or concepts that relate directly to the course outcomes and competencies.

HOW DO STUDENTS DEMONSTRATE THEY ARE COMPETENT IN THE DESIRED OUTCOMES?

All through the course and on each MAJOR ASSESSMENT, the class instructor and the approved clinical instructors (ACIs) will assign students a level of competency (percentage) they believe reflects how well you achieved the outcome. Your final grade will be based upon how well you have achieved EACH individual outcome in the course. Your FINAL assessments in this course will contain structured questions and skill demonstration scenarios that will reflect whether you have successfully met ALL seven major outcomes of the course.

The tests or MAJOR ASSESSMENTS (i.e., written and oral/practical exams) will contain questions designed to enable the class instructor and ACIs to evaluate your performance and understanding of the outcomes. The instructor has designed this course with assessment "bench marks" for his use. All assignments and/or projects given to students in this course will be assessed. Students will be given a certain standard to meet on these assessments, and the data recorded will demonstrate to the

instructor whether the students understand the competencies at hand and are ready to progress to the next set of competencies or clinical proficiencies. It is important students understand they are entering a field of study that requires them to do more than merely memorize/know material and concepts. Students MUST be able to apply this knowledge and course concepts to "real world situations" and make critical decisions as well as perform perfect clinical skills to insure quality health care and injury prevention of the physically active individual you will be responsible for. It is your goal as the student, therefore, to perform to your best ability on all assignments in order to become the best Athletic Training/ Sports Medicine professional you can be.

Placement/Credits:

This four (4) credit hour course will be offered to ELM-AT students during the fall semester of their first year. Completion of this course, with a "C" or better is necessary for continuing in the required curriculum sequence and for completion of the Marshall University Entry-Level Masters of Science in Athletic Training Program.

Required Texts*:

1. *Examination of Musculoskeletal Injuries (3rd ed.); Shultz, Houglum, & Perrin, 2010.
2. *Orthopedic & Athletic Injury Evaluation Handbook (2nd ed); Starkey, Brown, & Ryan, 2010.
3. Lower Extremity Injury Evaluation CD and Activity Manual; Mann & Grugan, 2010.
4. Daniels and Worthingham's Muscle Testing: Techniques of Manual Examination (8th ed.); Hislop & Montgomery, 2007. (optional)
5. Orthopedic & Athletic Injury Evaluation Handbook (2nd ed); Starkey et al, 2009. (optional)
6. The Clinical Measurement of Joint Motion; American Academy of Orthopaedic Surgeons. (optional)
7. Special Tests for Orthopedic Examination (3rd ed); Konin, Wiksten, Isear, and Brader, 2006. (optional)
8. Physical Examination of the Spine and Extremities; Hoppenfeld, 1976. (optional)

**The above texts will also be used for two additional evaluation courses, in addition to the associated practicum courses, with the exception of one text.*

ATTENDANCE & PARTICIPATION

Attendance and participation is expected and will be rewarded by enhanced learning, deepened content mastery, and the potential for more beneficial relationships with peers and faculty. This course is designed for active learners who are motivated, willing, and capable of meeting their responsibilities for learning. Missing classes is incongruent with being able to successfully meet the outcomes for this course in a timely and effective manner. Therefore, after the second unexcused class absence, the student's final letter grade will be deducted by a ½ letter grade. Further letter grade deductions will be made for additional, unexcused absences from class. Students with perfect attendance will have the greatest opportunity to earn the highest grades for this course and will be rewarded with points (see below). In the event the student is absent for official school business, the student will receive no penalty for the absence. Your participation in class discussion, activities, individual and group projects, and other assignments will be critical in your understanding and performance of the outcomes of this course, and subsequently enhance your grade in this course.

The attendance of each student will be reviewed throughout the course. Student absences will be posted on Blackboard for the course in a format that can be accessed by students at any point. Students with fewer than two absences will have the greatest opportunity to earn the highest grades for the course.

Other related comments regarding HS 524:

- Bring your book(s) to class every time we meet. Students will be responsible for reading assigned pages from the book prior to class and for completing in-class assignments.
- When missing a class (excused or unexcused), be responsible and courteous to call my office and leave a detailed message. You may also e-mail me. I will offer you the same courtesy if I am unable to attend class.
- In the event of an emergency, serious illness, death in the family, etc, all work must be completed within **one week** of the absence.
- For absence due to a school-sponsored function, all work must be completed and submitted **prior to** the class that will be missed.
- Work made up for an unexcused absence must be submitted within one week of the original due date and will be subject to a **20% reduction** in the score.
- Work submitted one week or more after the original due date will **not be accepted** and a score of zero "0" will be the resulting grade for the assignment/exam.
- The final grade of an Incomplete "I" will be given only in extreme and unavoidable situations. Keep in mind that you cannot register for subsequent courses in the ATP with an Incomplete in HS 524.
- The University's policy on academic dishonesty and cheating will be strictly adhered to and enforced at all times. Cheating, plagiarism, fabrication, or facilitating academic dishonesty will not be tolerated and will result in an "F" in the course.
- All members of the course (and the Radford University community) are responsible for promoting and protecting academic integrity.
- The use of cell phones, or other electronic devices, is *strictly prohibited* during class. All phones must be turned off so as to not disturb other students in the class or the instructor. If phones go off or if students are caught text messaging during class, the student will be asked to leave class, and he/she will receive an unexcused absence for that class.
- Falling asleep during your classes is not acceptable, especially classes in your major, as this demonstrates lack of interest to the instructor. Students caught sleeping during class will not receive participation points for that class, and may be asked to leave class if there are persistent problems with falling asleep during a class.
- Students are expected to be on time for class. The classroom door will be closed after the first five minutes of class. Students who are not in class at the proper time will receive an unexcused absence.
- Students must check D2L on a consistent basis for emails from the instructor, course assignments, etc. This should be done at least 2-3 times each week.
- Course objectives, Clinical Proficiencies, and Outcomes:
    - To satisfactory meet all objectives, clinical proficiencies, and outcomes (course and program) in this course, a minimum standard/score has been determined as listed and described in this course syllabus.
    - In order to pass the course you must meet the minimum standard.
    - If the minimum standard is not met on the first attempt you may re-attempt the assignment/exam one time at the time designated by the instructor.
    - On a re-attempt, only the minimum standard score is awarded.
- The last day to drop the course with a "W" is November 2

Social Justice: No one will be discriminated against on the basis of race, sex, ethnicity, age, sexual orientation, social class, abilities, or differing viewpoints. Each student will be viewed as a valuable part of this class.

Wireless Apparatus/Electronic Devices: All electronic devices (computers, phones, pagers, games, IPods, etc.) must be turned off at the beginning of each class unless the instructor specifically permits them for an in-class assignment. If a special circumstance arises (e.g. family emergency), notify the instructor before class to obtain permission to keep an electronic device on during class time.

Statement on learning disabilities: Reasonable accommodations will be made for students with diagnosed disabilities. Marshall University is committed to equal opportunity in education for all students, including those with physical, learning and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117, phone 304 696-2271 to provide documentation of their disability. Following this, the DSS Coordinator will send a letter to each of the student's instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing and grading. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, please visit http://www.marshall.edu/disabled or contact Disabled Student Services Office at Prichard Hall 11, phone 304-696-2271.

Honor code: Students found to have violated the honor code or plagiarize will be penalized; they will receive a zero on the assignment for the first offense; a second offense will result in a zero on the assignment and a two letter grade reduction in the course; a third offense is an automatic F in the course and recommended expulsion. The student will also be subject to dismissal from the athletic training program and/or Marshall University. For more information on Marshall's Academic Dishonesty policy go to: http://www.marshall.edu/president/board/Policies/MUBOG%20AA-12%20Academic%20Dishonesty.pdf. All offenders will be reported to the School of Kinesiology Chair and ATP Director as per the program disciplinary policy.

Computer Software Requirements**: It is required in this class to purchase or have immediate access to Microsoft Office 2003 Word application. The TRC has this program installed on all its computers. All assignments will have to be submitted via Word. (Note: Make sure your home computer has the proper system requirements so the Word program will run. Check before you purchase them.)

ASSIGNMENTS*

All assignments are expected to be turned in on the designated day, during class or via email as per the instructions provided by the instructor, or risk a reduction in points awarded for the assignment.

Outside of class Assignments: On a regular basis you will be given assignments to complete prior to class. Assignments typically require students to read material in the text and/or online and then to answer a series of questions and/or to prepare a written outline. These assignments will either be given to you in class or via e-mail and/or Blackboard. Students are expected to complete the assignment and bring it with them to class or to e-mail it to the instructor as a MS-Word attachment. These assignments will be reviewed for accuracy and meeting the deadline. Students may also be asked to present their research in an oral presentation format. Points will be awarded for meeting all the required stipulations.

Papers: *Annotated Bibliography Paper*: This paper will address common injuries of an area of the lower extremity assigned by the instructor. The emphasis must be on evaluation procedures and techniques. Specific details of this assignment will be distributed in class and posted on D2L. The Assignment is **due Wednesday, October 31** in class.

Quizzes: Unannounced quizzes may occur at any point during the course to confirm whether students are keeping up with textbook readings and reviewing course material presented by the instructor in either the classroom or lab setting. (You must score 70% pass.)

Notebook: Contains all class notes and handouts assimilated in a logical and sequenced manner. Students must use a rigid, "3-hole" notebook/binder. This notebook will be collected on at least one unannounced day during the course, in addition to final exam day. Students are encouraged to incorporate one or more of the following items into their notebook in order to receive full credit: type all class notes, use highlighter pens/markers, use tabs to separate sections of the notebook, and/or miscellaneous items not given by the instructor, but related to material presented in this course. This notebook will contain materials you will need for the remainder of your Athletic Training career (Students must score 21 on a 30 point scale). Students will also be required to maintain a separate notebook for the lab component of this course that follows a similar format as described above.

Scenarios: Several scenarios will be given to you during specific lab classes in which you will be asked to perform a specific clinical proficiency correctly or to perform the proper injury evaluation. Critical thinking will be required to complete this section. Be sure to practice clinical skills and to follow the HOPS method of evaluation (A score of 2-3 is required on the critical thinking rubric to PASS each of the scenarios).

Clinical Proficiency Assessments: As part of this course, students will learn how to perform over 125 clinical skills related to evaluation of the foot, ankle, lower leg, knee, thigh, and hip. Students will first learn these clinical skills in the lab course, and then will be expected to practice these skills with classmates in lab class, outside of class, and during their clinical rotations in order to become proficient on them. At designated times during the semester students will be expected to submit various "clinical proficiency packets" to the instructor, which demonstrate your understanding of these specific clinical skills. Failure to submit these assessments by the due date given by the instructor, will lead to points being deducted for this assignment.

Labs: On Wednesdays from 10-11:50am, lab classes will be held to help students learn and develop the specific psychomotor competencies and clinical proficiencies related to the evaluation of lower extremity and lumbar spine injuries. Students are expected to dress in clothing that will allow you to evaluate (and be evaluated by other students) any or all of the lower extremities. Students will spend a significant amount of time practicing and becoming proficient on the clinical skills first demonstrated by the instructor. Please note that some clinical skills take longer than others to learn and become proficient on depending upon the student and the difficulty of the skill. Therefore, make sure you allocate the entire lab period for practice of these skills. Moreover, there will be a number of oral/practical exams to determine if students are ready to proceed to the next section. Students must obtain a minimum of 80% to be considered passing on each of these O/P exams.

O/P exams: Oral/practical exams will be given approximately three times during the semester. Each one will include sections from the previous modules. You must pass each module with a minimum score of 70% to proceed to the next section. O/P's along with the written exam are considered to be MAJOR ASSESSMENTS for this course.

Exams: There will be seven MAJOR ASSESSMENTS within this course of study, including three written exams, three oral/practical exams, and one research project. Specific outcomes to which these major assessments will be evaluated will be explained to the student in advance of the exam or project date. You must pass each outcome covered on each MAJOR ASSESSMENT with a 70% standard to pass this course!

Lab Manual Assignments: Please next page for details on these assignments.

PROJECT/ASSIGNMENT*	***POINTS POSSIBLE***
Attendance	30
Participation	15
Reviewed outside-of-class assignments	150
Lab manual assignments (see handout for details)	200
Miscellaneous (Quizzes, Labs, Etc.)	75
Written Exam I	135
Oral/Practical Exam I	90
Written Exam II	150
Oral/Practical Exam II	165
Oral/Practical Exam III	200
Final Written Exam	180
Clinical Proficiencies	130
Annotated Bibliography	75
Notebook (Lecture)	30
Notebook (Lab)	20

** = additional details to be presented in class*

Total Points Possible = 1600

Grading Scale:

A = 90 – 100%. This grade shows evidence of OUTSTANDING performance and/or understanding of the complete outcome being assessed. *(1650-1485 points)*

B = 80 – 89%. This grade shows evidence of ABOVE AVERAGE performance and/or understanding of the complete outcome being assessed. *(1484-1320 points)*

C = 70 – 79%. This grade shows evidence of AVERAGE performance and/or understanding of the complete outcome being assessed. *(1319-1155 points)*

D = 60 – 69%. This grade shows evidence of BELOW AVERAGE performance and/or understanding of the complete outcome being assessed. *(1154-990 points)*

F = Below 60%. This grade shows evidence of UNACCEPTABLE performance and/or understanding of the complete outcome being assessed. *(989 points and below)*

HS 524
Tentative Schedule

Week 1	Review Syllabus and Course Outline Anatomical Nomenclature & Injury Classifications (Chap 1) Principles of Examination (Chap 2)
Week 2	History, Observation, Palpation, Stress/Special Tests (Chaps 3-7) General Examination Strategies (Chap 10)
Weeks 3, 4, & 5	Leg, Ankle, and Foot (Chap 16) Catch up, Review for test and *Exam #1*
Weeks 6, 7, & 8	Knee and Thigh (Chap 17) *Exam #2*
Weeks 9, 10, & 11	Hip, Pelvis, and Groin (Chap 18)
Week 12	Lower Extremity Neurological Evaluation (Chap 8*)
Weeks 13 & 14	Lower Thoracic and Lumbar Spine (Chap 15)
Week 15	Gait Assessment and Injuries associated with Gait (Chap 4*) (Podiatrist or Physical Therapist TBA)
Week 16	O/P testing and review
Final Exam	TBD

******The instructor reserves the right to make any changes/additions to the syllabus. Students are responsible for making changes to the syllabus as directed by the instructor.***

MARSHALL UNIVERSITY
College of Health Professions
School of Kinesiology
Athletic Training Program
HS 524 Lab – Fall 2016
Orthopedic Assessment of the Lower Extremity for Athletic Trainers Lab

Instructor: Dr. Joe Beckett, ATC

Contact Info: (304) 696-2929 (O) (859) 248-9582 (Cell 7-10 pm)
Beckett76@marshall.edu

Time/Days: TBD

Room: ATP Lab

Course description: This course is a laboratory section to complement the lecture section of HS 524 Emphasis will be placed on the practical application of anatomy identification, manual muscle testing, special testing, goniometric measurements, and neurological assessments of the lumbar spine and lower extremities. Techniques used to evaluate injuries both in the clinical setting as well as on the athletic field will be practiced. Documentation of injuries will also be reinforced.

Required Texts*:

1. **Examination of Musculoskeletal Injuries (3rd ed);* Shultz, Houglum, & Perrin, 2010.
2. **Lower Extremity Injury Evaluation CD and Activity Manual*; Mann & Grugan, 2010.
3. *Daniels and Worthingham's Muscle Testing: Techniques of Manual Examination (8th ed);* Hislop & Montgomery, 2007. (optional)
4. *Orthopedic & Athletic Injury Evaluation Handbook*; Starkey & Ray, 2003.
5. *Special Tests for Orthopedic Examination (3rd ed);* Konin, Wiksten, Isear, & Brader, 2006. (optional)
6. *Physical Examination of the Spine and Extremities;* Hoppenfield, 1976 (optional)

**The above texts will also be used for the HS 523 course, Orthopedic Assessment of the Upper Extremity for Athletic Trainers, with the exception of one text.*

Outcomes: Information and specific details about outcomes is presented in the HS 524 syllabus. The same criteria regarding achievement of the outcomes and how students demonstrate they are competent in the desired outcome will also be used for this lab course.

Course Objectives: After completion of the course, students will be able to:

1) Identify bony, soft, and nervous tissue anatomy.
2) Perform specific orthopedic tests to determine the extent of injury.
3) Use assessment tools to measure range of motion and girth.
4) Perform appropriate manual muscle tests and assigning a grade.
5) Utilize documentation techniques for the recording of specific injuries.

6) Develop a systematic approach to the evaluation process.
7) Recognize severe and life threatening conditions and refer athletes to a physician.

Other Course Policy Notes: The other policies described in the HS 524 syllabus regarding attendance and participation, academic dishonesty, cell phone usage, dress code for class, University policies, and grading scale will also be used and enforced in this course. Students will be notified at mid-term and periodically throughout the semester of their current academic standing. Methods of notification will be verbally through individual conference, written, and/or via e-mail. All methods will be kept confidential.

ASSIGNMENTS

All assignments are expected to be turned in on the designated day, during class, or risk a reduction in points awarded for the assignment.

Outside of class Assignments: On a regular basis you will be given assignments to complete prior to specific lab classes. Assignments typically require students to read material in one of more of the texts and/or online and then to prepare a brief oral presentation and demonstration for lab class. These assignments will either be given to you in class or via Blackboard. Students are expected to complete the assignment and bring it with them to class or to e-mail it back to the instructor as a MS-Word attachment. These assignments will be reviewed for accuracy and meeting the deadline. Points will be awarded for meeting these two stipulations.

Scenarios: Several scenarios will be given to you during specific lab classes in which you will be asked to perform a specific clinical proficiency correctly or to perform the proper injury evaluation. Critical thinking will be required to complete this section. Be sure to practice clinical skills and to follow the HOPS method of evaluation (Reflection will be graded using the designated critical thinking rubric, and a score of 2-3 is required to PASS the scenarios).

Labs: Every Wednesday from 10:00-11:50 lab classes will be held to help you learn and develop the specific psychomotor competencies and clinical skills related to the evaluation of lower extremity and lumbar spine injuries. Students are expected to dress in clothing that will allow them to evaluate (and be evaluated by other students') any or all of the lower extremities. Students will spend a significant amount of time practicing and becoming proficient on the clinical skills first demonstrated by the instructor. Please note that some clinical skills take longer than others to learn and become proficient on depending upon the student. Therefore, make sure you allocate the entire lab period for practice of these skills.

O/P exams: Oral/practical exams will be given approximately 3 times during the semester. Each exam could include materials from previous classes/labs. You must pass each exam with at least a 80% to proceed to the next section. O/P's along with the written exam and research project are considered to be your MAJOR ASSESSMENTS for this course. O/P exams will be given after the completion of each content area and the scores will be totaled with the lecture portion of the class (NOTE: the points for the O/P exams are stated in the HS 524 syllabus).

HS 524 Tentative Lab Schedule

Week 1 (8/22)	HOPS (Introduction & Review) General Exam Strategies Medical Terminology & Documentation
Week 2 (8/29)	Manual Muscle Testing and Goniometry (Introduction) MMT and Goniometry of Ankle, Foot, and Toes
Week 3 (9/5)	MMT and Goniometry of Ankle, Foot, and Toes (continued) Clinical Skills for Lower Leg, Ankle, Foot and Toes Assessment
Week 4 (9/12)	Clinical Skills for Lower Leg, Ankle, Foot and Toes Assessment (continued)
Week 5 (9/19)	Clinical Skill Testing
Week 6 (9/26)	MMT and Goniometry of Knee Clinical Skills for Knee Assessment
Week 7 (10/3)	Clinical Skills for Knee Assessment (continued)
Week 8 (10/10)	Clinical Skills for Knee Assessment (continued)
Week 9 (10/17)	Clinical Skill Testing
Week 10 (10/24)	MMT and Goniometry of Hip Clinical Skills for Hip, Thigh, and Pelvis Assessment
Week 11 (10/31)	Clinical Skills for Hip, Thigh, and Pelvis Assessment (continued)
Week 12 (11/7)	Clinical Skill Testing
Week 13 (11/14)	Gait Lab MMT and Goniometry of Lumbar Spine
Week 14 (11/21)	**No Class (*Thanksgiving Break*)**
Week 15 (11/28)	DTRs, Myotomes, Dermatomes Clinical Skills for Lumbar Spine Assessment
Week 16 (12/5)	Clinical Skill Testing

******The instructor reserves the right to make any changes/additions to this syllabus. Students are responsible for making changes to their personal copy of the syllabus.***

Request for Graduate Course Change-Page 4

College: COHP

Department: School of Kinesiology

Course Number/Title HS 524, Orthopedic Assessment of the Lower Extremity for Athletic Trainers

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.

Not applicable

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

Request for Graduate Course Change - Page 5

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 CREDIT HOURS CHANGE
Department: School of Kinesiology
Current Course Number/Title: HS 524, Orthopedic Assessment of the Lower Extremity for Athletic Trainers
New Course Number:
Rationale: A separate lab component of this course is needed, so the instructor has adequate and appropriate time to teach students all the associated clinical skills/competencies embedded in this course (NOTE: because HS 522, Orthopedic Skills and Procedures, will be deleted from the ELM-AT program, there is room within the program to make this change).
Catalog Description: Orthopedic evaluation techniques of the lower extremity for the Athletic Trainer.
Credit hours: 4

Chair: Tracy Christofero | **GC#7: Course Change**

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: COHP Dept/Division: School of Kinesiolog Current Alpha Designator/Number: HS 548

Contact Person: Joseph A. Beckett, EdD, ATC Phone: 304-696-2929

CURRENT COURSE DATA:

Course Title:

Alpha Designator/Number: H S 5 4 8

Title Abbreviation: T H E R A P E U T I C M O D A L I T I E S

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 Gary Ev	Date 10/20/14
Registrar Roberta Ferguson	Date 10/22/14
College Curriculum Chair Yvonne Graziano	Date 10/23/14
Graduate Council Chair TChristofero	Date 2-13-15

Request for Graduate Course Change - Page 2

College: COHP | Department/Division: School of Kinesiology | Alpha Designator/Number: HS 548

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

Change in CATALOG TITLE: ☒ YES ☐ NO

From: THERAPEUTIC MODALITIES (limited to 30 characters and spaces)

To: THERAPEUTIC INTERVENTIONS I

If Yes, Rationale: Specific objectives of the therapeutic modalities course and the therapeutic exercise will be integrated into HS 548 which would only discuss therapeutic modalities.

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: Investigation and analysis of therapeutic modalities including indications, contraindications, biophysics and procedures. Includes a lab. (PR: ESS 201, 215 & Permission)

To: Students in this course will be instructed therapeutic modalities used in the initial stages of injury, and therapeutic exercise rehabilitation of the lower extremity and lumbar spine. Special emphasis is given to the decision making processes involved with modality and exercise selection and parameter adjustment based upon patient pathologic responses and desired patient outcomes.

If Yes Rationale: Specific objectives of the therapeutic modalities course and the therapeutic exercise will be integrated into HS 548 which would only discuss therapeutic modalities.

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: 5

To: 4 (NOTE: a separate laboratory component of this course is needed for the instructor to teach and the students to practice those clinical skills that will be embedded in this course; additionally, 5 credit hours are not needed to delineate the course content as presented)

Change in COURSE CONTENT: ☒ YES ☐ NO (May attach separate page if needed)

From: Investigation and analysis of therapeutic modalities including indications, contraindications, biophysics and procedures (NOTE: please also refer to attached syllabus).

To: Students in this course will be instructed therapeutic modalities used in the initial stages of injury, and therapeutic exercise rehabilitation of the lower extremity and lumbar spine. Special emphasis is given to the decision making processes involved with modality and exercise selection and parameter adjustment based upon patient pathologic responses and desired patient outcomes (NOTE: please also refer to new syllabus for this course).

Rationale: Specific objectives of the therapeutic modalities course and the therapeutic exercise will be integrated into HS 548 which would only discuss therapeutic modalities.

Request for Graduate Course Change-Page 4

College: COHP

Department: School of Kinesiology

Course Number/Title HS 548, Therapeutic Interventions I

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.

NA

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.

NA

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.

NA

Request for Graduate Course Change - Page 5

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: School of Kinesiology
Course Number and Title: HS 548, Therapeutic Modalities in Athletic Training
Rationale: Specific objectives of the therapeutic modalities course and the therapeutic exercise will be integrated into HS 548 which would only discuss therapeutic modalities.
Course Description (old) Investigation and analysis of therapeutic modalities including indications, contraindications, biophysics and procedures. Includes a lab. (PR: ESS 201, 215 & Permission)
Course Description: (new)
Catalog Description: Students in this course will be instructed therapeutic modalities used in the initial stages of injury, and therapeutic exercise rehabilitation of the lower extremity and lumbar spine. Special emphasis is given to the decision making processes involved with modality and exercise selection and parameter adjustment based upon patient pathologic responses and desired patient outcomes.
Credit hours: 5

COURSE TITLE CHANGE
Department: School of Kinesiology
Current Course Number and Title: HS 548, Therapeutic Modalities in Athletic Training
New Course Title: Therapeutic Interventions I
Rationale: Specific objectives of the therapeutic modalities course and the therapeutic exercise will be integrated into HS 548 which would only discuss therapeutic modalities. As a result, an accompanying change in the title of this course is warranted.
Catalog Description: Students in this course will be instructed therapeutic modalities used in the initial stages of injury, and therapeutic exercise rehabilitation of the lower extremity and lumbar spine. Special emphasis is given to the decision making processes involved with modality and exercise selection and parameter adjustment based upon patient pathologic responses and desired patient outcomes.
Credit hours: 4

Course: HS448: Therapeutic Modalities in Athletic Training
Time/Location: TBD; GH203 **Term:** Spring 2014
Instructor: Zach Garrett, MS, MHA, ATC/LAT **Email:** garrett46@Marshall.edu
Office: Gullickson Hall 203D **Mail:** GH108 **Phone:** 304-696-2924
Office Hours: MW 10am-11; TR 1-3pm; other times and F by appointment

Texts: Starkey. Therapeutic Modalities (4th ed) . Philadelphia: F.A. Davis Co.

Prerequisites: Passing grade (C or better) in HS215.

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: This course covers (1) the normal physiological response of tissue inflammation and repair, (2) pain theories and neurophysiology, and (3) the basic principles for the utilization of cryotherapy, thermotherapy, electrotherapy, laser therapy, acupuncture, traction, and massage. Lab sessions are correlated with lecture and may require additional time for practice.

Learning Outcomes:	**How students will practice each outcome in this Course:**	**How student achievement of each outcome will be assessed in this Course:**
Describe and differentiate the physiological and pathophysiological responses to inflammatory and non-inflammatory conditions and the influence of these responses on the design, implementation, and progression of a therapeutic intervention.	• In-class discussions • Practice assignments	• Chapter quizzes • Written Exams
Assess the patient to identify indications, contraindications, and precautions applicable to the intended intervention. Position and prepare the patient for various therapeutic interventions. Describe the expected effects and potential adverse reactions to the patient. Apply the intervention, using parameters appropriate to the intended outcome. Reassess the patient to determine the immediate impact of the intervention.	• In-class discussions • Labs	• Chapter quizzes • Written Exams
Identify manufacturer, institutional, state, and/or federal standards that influence approval, operation, inspection, maintenance and safe application of therapeutic modalities and rehabilitation equipment.	• In-class lecture and discussion	• Chapter quizzes • Written Exams
Compare and contrast contemporary theories of pain perception and pain modulation. Differentiate between palliative and primary pain-control interventions. Explain the theory and principles relating to expected physiological response(s) during and following therapeutic interventions.	• Labs • Group work/practice assignments	• Written Exams • Chapter quizzes
Describe the laws of physics that (1) underlay the application of thermal, mechanical, electromagnetic, and acoustic energy to the body and (2) form the foundation for the development of therapeutic interventions (eg, stress-strain, leverage, thermodynamics, energy transmission and attenuation, electricity).	• In-class discussions • Labs	• Chapter quizzes • Written Exams

Writing Intensive: This class is designated as a Marshall University Writing Intensive Course. Students will use writing skills to both document medical information in appropriate formats and improve his/her writing skills through graded and ungraded assignments throughout the course. Additionally, students will use professional, peer reviewed literature to support their writing.

Attendance policy: Attendance at class is mandatory. If you are unable to come to class (extreme cases only), please speak with me in person or leave a message on my voice mail or email PRIOR to class. To find information regarding class delays/cancellations due to inclement weather log onto www.marshall.edu or call (304) 696-696-6245 (audix) or 696-3170 (the university response number). **There is no excuse for lack of communication with the class instructor.**

- Qualified excused absences include: illness, family crisis, or approved institutional activity. If you miss class due to an acute illness, you must bring a note from your physician for an excused absence (note: this does NOT include

routine medical appointments unless of a special nature and only then with prior written notice and approval). Students have one week to provide appropriate documentation to excuse an absence. The student is expected to have a personal schedule appropriate for class attendance.

- Exams/practicals: must be taken on or before their scheduled date. Students who miss an exam/practical due to approved unforeseen circumstances have a maximum of one week to make it up (those missed without an excuse will receive a grade of zero).
- Absenteeism at class will have the following effect on your grade: 5 points off participation grade for *each* absence; two tardies (5-10 minutes) count as an absence (10+ minutes is an absence—you are welcome to stay and learn); five cumulative *unexcused* absences will result in your being dropped from the course.

Social Justice: No one will be discriminated against on the basis of race, sex, ethnicity, age, sexual orientation, social class, abilities, or differing viewpoints. Each student will be viewed as a valuable part of this class.

Wireless Apparatus/Electronic Devices: All electronic devices (computers, phones, pagers, games, IPods, etc.) must be turned off at the beginning of each class unless the instructor specifically permits them for an in-class assignment. If a special circumstance arises (e.g. family emergency), notify the instructor before class to obtain permission to keep an electronic device on during class time.

Statement on learning disabilities: Reasonable accommodations will be made for students with diagnosed disabilities. Marshall University is committed to equal opportunity in education for all students, including those with physical, learning and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117, phone 304 696-2271 to provide documentation of their disability. Following this, the DSS Coordinator will send a letter to each of the student's instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing and grading. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, please visit http://www.marshall.edu/disabled or contact Disabled Student Services Office at Prichard Hall 11, phone 304-696-2271.

Honor code: Students found to have violated the honor code or plagiarize will be penalized; they will receive a zero on the assignment for the first offense; a second offense will result in a zero on the assignment and a two letter grade reduction in the course; a third offense is an automatic F in the course and recommended expulsion. The student will also be subject to dismissal from the athletic training program and/or Marshall University. For more information on Marshall's Academic Dishonesty policy go to: http://www.marshall.edu/president/board/Policies/MUBOG%20AA-12%20Academic%20Dishonesty.pdf. All offenders will be reported to the School of Kinesiology Chair and ATEP Director as per the program disciplinary policy.

Evaluation Process:

Quizzes (10):	100 pts
Labs	100pts
Practical/Oral exam (3):	150 pts
Midterm Written (2):	200 pts
Final Written:	150 pts
Total	**700 pts**

Course Grades:

A = 90 – 100%, B = 80 – 89%, C = 70 – 79%, D = 60 – 69%, F = below 60

Quizzes:

Announced and unannounced quizzes will be given throughout the semester during scheduled class times. These quizzes can cover all information presented prior to the quiz and following the previous quiz. If a quiz is missed the student will receive a zero, quizzes cannot be made up unless prior arrangements have been made.

Practical/Oral Exam:

During the semester, you will be tested 3 times on a practical examination that will last 15-20 minutes. The purpose of these examinations is to evaluate skills practiced during laboratory sessions as well as to assess the student's ability to interpret and communicate information accurately. The types of laboratory skills to be assessed in this course include discussion of:

1. The indications, contraindications and precautions for the therapeutic modalities covered in this course.
2. Safety regarding operating specific modalities

Written Exams:

During this course one midterm examination and one final examination will be administered. The format of these examinations will be multiple choice, true false, fill in the blank or short essay. Short essays regarding patient cases may also be included. The midterm examination will test the material covered during the prior class meetings. The final written examination will be comprehensive for the whole course. Exams must be taken during the regularly scheduled class time unless there is an illness or family emergency. A doctor's excuse will be required in the event of illness. Any student absent from a regularly scheduled exam without a valid excuse will receive a score of zero. Exams cannot be made up unless prior arrangements have been made.

Attendance Policy:

You are expected to attend all classes. Qualified excused absences will be considered to be an illness, family crisis or approved institutional activity. This does not include routine medical appointments (unless of special nature and only with prior written notification and approval). A missed class must be verified, in writing, by Office of Student Affairs, in order to count as an excused absence. Unforeseeable absences will not be counted as excused unless the student provides the instructor with written documentation and verification within two days of the class missed. Students are expected to make up exams missed within one week of returning to class at a time mutually agreed upon with the instructor except with scheduled institutional activities which will be discussed AHEAD of time for a make-up schedule. Should an assignment be due on a missed day, then the assignment will be due the next class session. Being late to class is the same as a class absence.

Laboratory Attire:

When in the skills laboratory, loose fitting shorts (no denim) are required for lower extremity modality application. Sports bras are required for females during spinal and shoulder girdle treatments.

Course Schedule;

	Topics
WEEKS 1-4	Introduction, syllabus / grading
	Tissue Response to Injury and Inflammation
	Physiology and Psychology of Pain
	Application procedures and record keeping
WEEKS 5-8	Thermotherapy
	Cryotherapy
	Ultrasound
WEEK 9-12	Electrotherapy, principles
	Electrotherapy, principles
	Electrotherapy, pain
	Electrotherapy, muscle contraction
	Electrotherapy, wound healing
	Electrotherapy, iontophoresis
WEEK 13-16	Therapeutic Massage
	Spinal Traction
	Laser and Light Therapy
	Differential Application of Therapeutic Modalities

Course: HS548: Therapeutic Interventions I in Athletic Training
Time/Location: TBD; GH203 **Term:** Spring 2017
Instructor: Zach Garrett, MS, MHA, ATC/LAT **Email:** garrett46@Marshall.edu
Office: Gullickson Hall 203D **Mail:** GH108 **Phone:** 304-696-2924
Office Hours: MW 10am-11; TR 1-3pm; other times and F by appointment

Texts: Therapeutic Modalities 4th ed., Starkey (Required).
Therapeutic Exercise for Musculoskeletal Injuries 3rd ed., Houglum (Required)
The Rehabilitation Specialist Handbook 3rd ed., Rothstein, Roy, & Wolf (Required)

Prerequisites: Passing grade (C or better) in HS215.

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: Students in this course will be instructed modalities used in the initial stages of injury, and therapeutic exercise rehabilitation of the lower extremity and lumbar spine. Special emphasis is given to the decision making processes involved with modality and exercise selection and parameter adjustment based upon patient pathologic responses and desired patient outcomes.

Learning Outcomes:	How students will practice each outcome in this Course:	How student achievement of each outcome will be assessed in this Course:
Describe, diagram and explain the concept of pain and current theories on how it is transmitted	• In-class discussions • Group work/Practice assignments	• Chapter quizzes • Written Exams
Describe the physiological process of wound healing as it relates to modality and exercise usage and selection	• In-class discussions • Group work/Practice assignments	• Chapter quizzes • Written Exams
Explain the normal process of injury healing and key events occurring in each phase	• In-class discussions • Group work/Practice assignments	• Chapter quizzes • Written Exams
Describe and differentiate the physiological and pathophysiological responses to inflammatory and non-inflammatory conditions and the influence of these responses on the design, implementation, and progression of a therapeutic intervention	• In-class discussions • Group work/Practice assignments	• Written Exams • Chapter quizzes
Understand the systemic and local physiological effects of heat and cold on normal and traumatized tissues of the body	• In-class discussions • Group work/Practice assignments	• Written Exams • Chapter quizzes
Explain the therapeutic indications and contraindications associated with heat, cold, ultrasound, and diathermy modalities, including demonstration of patient preparation, instruction, administration, and dosage of each modality.	• In-class discussions • Group work/Practice assignments	• Written Exams • Chapter quizzes • Research project
Explain the therapeutic indications and contraindications associated with electrical stimulation modalities (including pain protocols, motor protocols and iontophoresis treatments), including demonstration of patient preparation, instruction, administration, and dosage of each modality.	• In-class discussions • Group work/Practice assignments	• Written Exams • Chapter quizzes • Research project

Define and explain the basic principles of electrophysics associated with the use of electric modalities (frequency, wavelength, amperes, volts, watts, etc.)	• In-class discussions • Group work/Practice assignments	• Written Exams • Chapter quizzes
Take goniometric and anthropometric measurements of all major body joints, and design rehabilitation programs based upon the results	• In-class discussions • Group work/Practice assignments • Labs	• Written Exams • Chapter quizzes
Demonstrate proper patient preparation, instructions and positioning when performing exercises for the lower extremity and lumbar spine.	• In-class discussions • Group work/Practice assignments • Labs	• Oral/Practical Exams • Chapter quizzes
Demonstrate the ability to perform various proprioceptive neuromuscular facilitation techniques for the lower extremity and lumbar spine	• In-class discussions • Group work/Practice assignments • Labs	• Oral/Practical Exams • Chapter quizzes
Explain the theory and grading associated with joint mobilizations	• In-class discussions • Group work/Practice assignments	• Written Exams • Chapter quizzes
Demonstrate the ability to perform joint mobilization for the lower extremity and lumbar spine	• In-class discussions • Group work/Practice assignments • Labs	• Oral/Practical Exams • Chapter quizzes
Design a complete rehabilitation program for lower extremity and lumbar spine injuries including proper progression measurements and goals for return to play	• In-class discussions • Group work/Practice assignments	• Written Exams • Chapter quizzes • Research project •
Identify isometric, isotonic and isokinetic exercises which can be used to facilitate recovery of lumbar spine and lower extremity injuries	• In-class discussions • Group work/Practice assignments • Labs	• Written Exams • Chapter quizzes
Explain the basic methodology of common surgical techniques for the lumbar spine (eg: spinal fusion, interverberal disc repair).	• In-class discussions • Group work/Practice assignments	• Written Exams • Chapter quizzes • Research project •
Explain the basic methodology of common surgical techniques for the lower extremity (eg: arthroscopy, ACL reconstruction, joint replacement).	• In-class discussions • Group work/Practice assignments	• Written Exams • Chapter quizzes
Identify the testing protocols used for measuring muscular strength, speed, agility and flexibility	• In-class discussions • Group work/Practice assignments • Labs	• Written Exams • Oral/Practical • Chapter quizzes
Demonstrate the ability to appropriately document patient care, using appropriate terminology and procedural coding and complying with statutes the regulate privacy of medical records	• In-class discussions • Group work/Practice assignments • Labs	• Written Exams • Chapter quizzes

Writing Intensive: This class is designated as a Marshall University Writing Intensive Course. Students will use writing skills to both document medical information in appropriate formats and improve his/her writing skills through graded and ungraded assignments throughout the course. Additionally, students will use professional, peer reviewed literature to support their writing.

Attendance policy: Attendance at class is mandatory. If you are unable to come to class (extreme cases only), please speak with me in person or leave a message on my voice mail or email PRIOR to class. To find information regarding class delays/cancellations due to inclement weather log onto www.marshall.edu or call (304) 696-696-6245 (audix) or 696-3170 (the university response number). **There is no excuse for lack of communication with the class instructor.**

- Qualified excused absences include: illness, family crisis, or approved institutional activity. If you miss class due to an acute illness, you must bring a note from your physician for an excused absence (note: this does NOT include routine medical appointments unless of a special nature and only then with prior written notice and approval). Students have one week to provide appropriate documentation to excuse an absence. The student is expected to have a personal schedule appropriate for class attendance.
- Exams/practicals: must be taken on or before their scheduled date. Students who miss an exam/practical due to approved unforeseen circumstances have a maximum of one week to make it up (those missed without an excuse will receive a grade of zero).
- Absenteeism at class will have the following effect on your grade: 5 points off participation grade for *each* absence; two tardies (5-10 minutes) count as an absence (10+ minutes is an absence—you are welcome to stay and learn); five cumulative *unexcused* absences will result in your being dropped from the course.

Social Justice: No one will be discriminated against on the basis of race, sex, ethnicity, age, sexual orientation, social class, abilities, or differing viewpoints. Each student will be viewed as a valuable part of this class.

Wireless Apparatus/Electronic Devices: All electronic devices (computers, phones, pagers, games, IPods, etc.) must be turned off at the beginning of each class unless the instructor specifically permits them for an in-class assignment. If a special circumstance arises (e.g. family emergency), notify the instructor before class to obtain permission to keep an electronic device on during class time.

Statement on learning disabilities: Reasonable accommodations will be made for students with diagnosed disabilities. Marshall University is committed to equal opportunity in education for all students, including those with physical, learning and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117, phone 304 696-2271 to provide documentation of their disability. Following this, the DSS Coordinator will send a letter to each of the student's instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing and grading. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, please visit http://www.marshall.edu/disabled or contact Disabled Student Services Office at Prichard Hall 11, phone 304-696-2271.

Honor code: Students found to have violated the honor code or plagiarize will be penalized; they will receive a zero on the assignment for the first offense; a second offense will result in a zero on the assignment and a two letter grade reduction in the course; a third offense is an automatic F in the course and recommended expulsion. The student will also be subject to dismissal from the athletic training program and/or Marshall University. For more information on Marshall's Academic Dishonesty policy go to: http://www.marshall.edu/president/board/Policies/MUBOG%20AA-12%20Academic%20Dishonesty.pdf. All offenders will be reported to the School of Kinesiology Chair and ATEP Director as per the program disciplinary policy.

Evaluation Process:

Quizzes (10):	100 pts
Labs	150pts
Practical/Oral exam (3):	150 pts
Midterm Written (2):	200 pts
Final Written:	200 pts
Research project	200 pts
Total	**1000 pts**

Course Grades:

A = 90 – 100%, B = 80 – 89%, C = 70 – 79%, D = 60 – 69%, F = below 60

Quizzes:

Announced and unannounced quizzes will be given throughout the semester during scheduled class times. These quizzes can cover all information presented prior to the quiz and following the previous quiz. If a quiz is missed the student will receive a zero, quizzes cannot be made up unless prior arrangements have been made.

Practical/Oral Exam:

During the semester, you will be tested 3 times on a practical examination that will last 15-20 minutes. The purpose of these examinations is to evaluate skills practiced during laboratory sessions as well as to assess the student's ability to interpret and communicate information accurately. The types of laboratory skills to be assessed in this course include discussion of:

1. The indications, contraindications and precautions for the therapeutic modalities covered in this course.
2. Safety regarding operating specific modalities

Written Exams:

During this course one midterm examination and one final examination will be administered. The format of these examinations will be multiple choice, true false, fill in the blank or short essay. Short essays regarding patient cases may also be included. The midterm examination will test the material covered during the prior class meetings. The final written examination will be comprehensive for the whole course. Exams must be taken during the regularly scheduled class time unless there is an illness or family emergency. A doctor's excuse will be required in the event of illness. Any student absent from a regularly scheduled exam without a valid excuse will receive a score of zero. Exams cannot be made up unless prior arrangements have been made.

Attendance Policy:

You are expected to attend all classes. Qualified excused absences will be considered to be an illness, family crisis or approved institutional activity. This does not include routine medical appointments (unless of special nature and only with prior written notification and approval). A missed class must be verified, in writing, by Office of Student Affairs, in order to count as an excused absence. Unforeseeable absences will not be counted as excused unless the student provides the instructor with written documentation and verification within two days of the class missed. Students are expected to make up exams missed within one week of returning to class at a time mutually agreed upon with the instructor except with scheduled institutional activities which will be discussed AHEAD of time for a make-up schedule. Should an assignment be due on a missed day, then the assignment will be due the next class session. Being late to class is the same as a class absence.

Laboratory Attire:

When in the skills laboratory, loose fitting shorts (no denim) are required for lower extremity modality application. Sports bras are required for females during spinal and shoulder girdle treatments.

Course Schedule;

	Topics
WEEKS 1-5	Introduction, syllabus / grading Tissue Response to Injury and Inflammation Physiology and Psychology of Pain Application procedures and record keeping Thermotherapy, Cryotherapy, Ultrasound, Diathermy
WEEKS 6-8	Electrotherapy, principles Electrotherapy, pain Electrotherapy, muscle contraction Electrotherapy, wound healing Electrotherapy, iontophoresis
WEEKS 9-11	Goniometry and Anthropometry Isometric, Isotonic, & Isokinetic exercises Joint mobilizations PNF
WEEKS 12-15	Surgical interventions/procedures Therapeutic Exercise program design Testing protocols
	Therapeutic Massage Spinal Traction Laser and Light Therapy Differential Application of Therapeutic Modalities

Chair: Tracy Christofero | **GC#7: Course Change**

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: COHP Dept/Division: School of Kinesiolog Current Alpha Designator/Number: HS 549

Contact Person: Joseph A. Beckett, EdD, ATC Phone: 304-696-2929

CURRENT COURSE DATA:

Course Title:

Alpha Designator/Number: H S 5 4 9

Title Abbreviation: T H E R A P E U T I C E X E R C I S E

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 10/20/14
Registrar	Date 10/22/14
College Curriculum Chair	Date 10/23/14
Graduate Council Chair	Date 2-13-15

Request for Graduate Course Change - Page 2

College: COHP | Department/Division: School of Kinesiology | Alpha Designator/Number: HS 549

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

Change in CATALOG TITLE: ☒ YES ☐ NO

From THERAPEUTIC EXERCISE (limited to 30 characters and spaces)

To THERAPEUTIC INTERVENTIONS II

If Yes, Rationale: Specific objectives of the therapeutic modalities course and the therapeutic exercise will be integrated into HS 549 which would only discuss therapeutic modalities.

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: Investigation and analysis of current trends in rehabilitation exercise, muscle testing and evaluation. Includes a lab. (PR: ESS 201, 215 & Permission) or equivalent

To: Students in this course will be instructed in electrical stimulation modalities and therapeutic exercise rehabilitation of the upper extremity and cervical spine. Post surgical rehabilitation for both upper and lower extremities and the spine will be incorporated. Special emphasis is given to the decision making processes involved with modality and exercise selection and parameter adjustment based upon patient pathologic responses and desired patient outcomes.

If Yes Rationale: Specific objectives of the therapeutic modalities course and the therapeutic exercise will be integrated into HS 549 which would only discuss therapeutic modalities.

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 (May attach separate page if needed)

From Investigation and analysis of current trends in rehabilitation exercise, muscle testing and evaluation (NOTE: please refer to attached syllabus).

To Students in this course will be instructed in electrical stimulation modalities and therapeutic exercise rehabilitation of the upper extremity and cervical spine. Post surgical rehabilitation for both upper and lower extremities and the spine will be incorporated. Special emphasis is given to the decision making processes involved with modality and exercise selection and parameter adjustment based upon patient pathologic responses and desired patient outcomes. Additionally, specific psychosocial intervention competencies will be embedded in this course (NOTE: please refer to new syllabus for this course that is attached).

Rationale Specific objectives of the therapeutic modalities and the therapeutic exercise courses will be integrated into HS 548 which would only discuss therapeutic modalities. Additionally, specific psychosocial intervention competencies need to be embedded in this course because they were not being adequately addressed in the ELM-AT as originally proposed.

Request for Graduate Course Change-Page 4

College: COHP

Department: School of Kinesiology

Course Number/Title HS 549, Therapeutic Interventions II

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.

NA

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.

NA

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.

NA

Request for Graduate Course Change - Page 5

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: School of Kinesiology
Course Number and Title: HS 549, Therapeutic Exercise in Athletic Training
Rationale: Specific objectives of the therapeutic modalities course and the therapeutic exercise will be integrated into HS 549 which would only discuss therapeutic modalities.
Course Description (old)
Course Description: (new)
Catalog Description: Students in this course will be instructed in electrical stimulation modalities and therapeutic exercise rehabilitation of the upper extremity and cervical spine. Post surgical rehabilitation for both upper and lower extremities and the spine will be incorporated. Special emphasis is given to the decision making processes involved with modality and exercise selection and parameter adjustment based upon patient pathologic responses and desired patient outcomes.
Credit hours: 4

COURSE TITLE CHANGE
Department: School of Kinesiology
Current Course Number and Title: HS 549, Therapeutic Exercise in Athletic Training
New Course Title: Therapeutic Interventions II
Rationale: Specific objectives of the therapeutic modalities course and the therapeutic exercise will be integrated into HS 548 which would only discuss therapeutic modalities. As a result, an accompanying change in the title of this course is warranted.
Catalog Description: Students in this course will be instructed in electrical stimulation modalities and therapeutic exercise rehabilitation of the upper extremity and cervical spine. Post surgical rehabilitation for both upper and lower extremities and the spine will be incorporated. Special emphasis is given to the decision making processes involved with modality and exercise selection and parameter adjustment based upon patient pathologic responses and desired patient outcomes.
Credit hours: 4

Course: HS449: Rehabilitation Techniques in Athletic Training
Time/Location: TR 9:30-10:45am; GH203 **Term:** Spring 2014
Instructor: Zach Garrett, MS, MHA, ATC/LAT, Dr. Gary McIlvain, ATC **Email:** garrett46@Marshall.edu
Office: Gullickson Hall 203D **Mail:** GH108 **Phone:** 304-696-2924
Office Hours: MW 10am-Noon; 1-3pm; TR 1-3pm; other times and F by appointment

Texts: Therapeutic Exercise for Musculoskeletal Injuries 3rd ed., Houglum (Required)
The Rehabilitation Specialist Handbook 3rd ed., Rothstein, Roy, & Wolf (Required)

Prerequisites: Passing grade (C or better) in HS 423 and HS424 and all prerequisites for those courses.

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: Orthopedic evaluation of the back and lower extremity for the athletic trainer.

Learning Outcomes:	**How students will practice each outcome in this Course:**	**How student achievement of each outcome will be assessed in this Course:**
Differentiate between an initial injury evaluation and follow-up/reassessment as a means to evaluate the efficacy of the patient's treatment/rehabilitation program, and make modifications to the patient's program as needed.	• In-class discussions • Group work/practice assignments	• Chapter quizzes • Written Exams • Project
Describe the influence of pathomechanics on function and instruct clients/patients in the basic principles of ergodynamics and their relationship to the prevention of illness and injury.	• In-class discussions • Labs	• Chapter quizzes • Written Exams
Demonstrate the ability to recognize and refer at-risk individuals and individuals with psychosocial disorders and/or mental health emergencies. Select and integrate appropriate psychosocial techniques into a patient's treatment or rehabilitation program to enhance rehabilitation adherence, return to play, and overall outcomes. This includes, but is not limited to, verbal motivation, goal setting, imagery, pain management, self-talk, and/or relaxation.	• Labs • Group work/practice assignments	• Chapter quizzes • Written Exams
Utilize documentation strategies to effectively communicate with patients, physicians, insurers, colleagues, administrators, and parents or family members while using appropriate terminology and complying with statues that regulate privacy of medical records. This includes using a comprehensive patient-file management system (including diagnostic and procedural codes) for appropriate chart documentation, risk management, outcomes, and billing.	• Labs • Group work/practice assignments	• Project
Apply and interpret clinical outcomes to assess patient status, progress, and change using psychometrically sound outcome instruments and develop a relevant clinical question using a pre-defined question format (eg, PICO = Patients, Intervention, Comparison, Outcomes; PIO = Patients, Intervention, Outcomes).	• In-class discussions • Labs	• Project
Explain the importance of educating patients, parents/guardians, and others regarding the condition in order to enhance the psychological and emotional well-being of the patient and provide appropriate education regarding the condition and plan of care to the patient and appropriately discuss with others as needed and as appropriate to protect patient privacy.	• In-class discussions • Labs	• Project
Summarize and demonstrate contemporary theory regarding educating patients of all ages and cultural backgrounds to effect behavioral change and the basic processes of effective interpersonal and cross-cultural communication as it relates to interactions with patients and others involved in the healthcare of the patient.	• In-class discussions • Labs	• Project
Design therapeutic interventions to meet specified treatment goals, instruct the patient how to correctly perform rehabilitative exercises, and integrate self-treatment into the	• In-class discussions • Labs	• Chapter quizzes • Written Exams • Project

intervention when appropriate, including instructing the patient regarding self-treatment plans.		
Inspect therapeutic equipment and the treatment environment for potential safety hazards.	• In-class discussions • Labs	• Chapter quizzes • Written Exams
Describe common surgical techniques, including interpretation of operative reports, and any resulting precautions, contraindications, and comorbidities that impact the selection and progression of a therapeutic intervention program and compare and contrast the variations in the physiological response to injury and healing across the lifespan.	• In-class discussions • Labs	• Chapter quizzes • Written Exams • Project
Analyze the impact of immobilization, inactivity, and mobilization on the body systems (eg, cardiovascular, pulmonary, musculoskeletal) and injury response.	• Labs • Group work/practice assignments	• Chapter quizzes • Written Exams
Analyze gait and select appropriate instruction and correction strategies to facilitate safe progression to functional gait pattern.	• Labs • Group work/practice assignments	• Chapter quizzes • Written Exams

Writing Intensive: This class is designated as a Marshall University Writing Intensive Course. Students will use writing skills to both document medical information in appropriate formats and improve his/her writing skills through graded and ungraded assignments throughout the course. Additionally, students will use professional, peer reviewed literature to support their writing.

Attendance policy: Attendance at class is mandatory. If you are unable to come to class (extreme cases only), please speak with me in person or leave a message on my voice mail or email PRIOR to class. To find information regarding class delays/cancellations due to inclement weather log onto www.marshall.edu or call (304) 696-696-6245 (audix) or 696-3170 (the university response number). **There is no excuse for lack of communication with the class instructor.**

- Qualified excused absences include: illness, family crisis, or approved institutional activity. If you miss class due to an acute illness, you must bring a note from your physician for an excused absence (note: this does NOT include routine medical appointments unless of a special nature and only then with prior written notice and approval). Students have one week to provide appropriate documentation to excuse an absence. The student is expected to have a personal schedule appropriate for class attendance.
- Exams/practicals: must be taken on or before their scheduled date. Students who miss an exam/practical due to approved unforeseen circumstances have a maximum of one week to make it up (those missed without an excuse will receive a grade of zero).
- Absenteeism at class will have the following effect on your grade: 5 points off participation grade for *each* absence; two tardies (5-10 minutes) count as an absence (10+ minutes is an absence—you are welcome to stay and learn); five cumulative *unexcused* absences will result in your being dropped from the course.

Social Justice: No one will be discriminated against on the basis of race, sex, ethnicity, age, sexual orientation, social class, abilities, or differing viewpoints. Each student will be viewed as a valuable part of this class.

Wireless Apparatus/Electronic Devices: All electronic devices (computers, phones, pagers, games, IPods, etc.) must be turned off at the beginning of each class unless the instructor specifically permits them for an in-class assignment. If a special circumstance arises (e.g. family emergency), notify the instructor before class to obtain permission to keep an electronic device on during class time.

Statement on learning disabilities: Reasonable accommodations will be made for students with diagnosed disabilities. Marshall University is committed to equal opportunity in education for all students, including those with physical, learning and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117, phone 304 696-2271 to provide documentation of their disability. Following this, the DSS Coordinator will send a letter to each of the student's instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing and grading. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, please visit http://www.marshall.edu/disabled or contact Disabled Student Services Office at Prichard Hall 11, phone 304-696-2271.

Honor code: Students found to have violated the honor code or plagiarize will be penalized; they will receive a zero on the assignment for the first offense; a second offense will result in a zero on the assignment and a two letter grade reduction in the course; a third offense is an automatic F in the course and recommended expulsion. The student will also be subject to dismissal from the athletic training program and/or Marshall University. For more information on Marshall's Academic Dishonesty policy go to: http://www.marshall.edu/president/board/Policies/MUBOG%20AA-12%20Academic%20Dishonesty.pdf. All offenders will be reported to the School of Kinesiology Chair and ATEP Director as per the program disciplinary policy.

Assessments:

Written Exams: All students will complete 3 term exams. Format details will be discussed in class. (100pts each)

Quizzes: All students will complete quizzes on Blackboard for each chapter covered in class. They are open book and untimed, but due at 11:59pm prior to the relevant test date. (10pts each)

Labs: Students are expected to come to class prepared to be active and in clothing appropriate for exposure for palpation and special test practice. Lab skills will be integrated into the regular class period and held on separate days. Students in HS549 will prepare and lead portions of the lab experiences. Participation is mandatory. (20pts each)

Rehabilitation Project: Students will be assigned a surgical procedure or injury for which they will research contemporary treatments and rationale used by practicing rehabilitation specialists. The research should include, but is not limited to: an interview with a community professional NOT on staff at Marshall University, a *minimum* of 10 peer-reviewed journal sources, and one standardized rehabilitation protocol that includes: anatomical/physiological constraints imposed by the procedures used, short term goals, long term goals, therapeutic techniques used, frequency/duration of treatment sessions, and final evaluation/discharge criteria. Each student will have 10 minutes (maximum) to present the highlights of their final project to the class using a PowerPoint presentation and any other relevant materials or demonstrations. (200pts)

Attendance/Participation: Class attendance and participation are mandatory (see policy above for details). (50pts)

Late Work: Each day an assignment is late is 5 points off its grade. All assignments are due in class; those turned in after 12noon are considered 1 day late and will be marked down accordingly.

Grading:

Written Exams (3)	300 points
Labs (9)	180 points
Rehabilitation Project (HS449 only)	200 points
Outline & Sources	*60 points*
Paper	*100 points*
Presentation	*40 points*
Chapter quizzes (17)	170 points
Attendance/participation	50 points

Course evaluation (%):

A	100-90.0
B	89.9-80.0
C	79.9-70.0
D	69.9-60.0
F	59.9-below

Course calendar: All assignments and extra credit are to be completed/submitted no later than the last regular class day at 12noon.

January:

14 Course introduction, syllabus, project ideas; Chapter 1: Concepts of Rehabilitation
16 Chapter 2: Concepts of Healing
21 Chapter 3: Concepts in Physics
23 Chapter 4: Evaluation and Examination
28 *SOAP Lab*
30 Chapter 5: ROM and Flexibility

February:

4 *Goniometry Lab*
6 **Exam #1 Chapters 1-5; Project Sources & Outline Due**
11 Chapter 6: Manual Therapy Techniques
13 *Mobilization lab and Massage Therapy Lab*
18 Chapter 7: Muscle Strength and Endurance
20 Chapter 8: Proprioception; Chapter 9: Plyometrics Chapter
25 *Balance, Proprioception, Plyometrics, and Speed Lab*
27 Chapter 10: Functional Exercise; Chapter 14: Swiss Balls and Foam Rollers

March:

4 *Functional Exercise Lab*; **Project Rough Draft Due**
6 *Swiss Ball and Roller Lab*
11 Lab
13 **Exam #2 Chapters 6-10, 14**
18 *spring break*
20 *spring break*
25 Chapter 11: Posture and Body Mechanics
27 Chapter 12: Ambulation and Ambulation Aids

April:

1 *Posture and Assistive Device Lab*
3 Chapter 13: Aquatic Therapeutic Exercise; Chapter 15: Tendinitis
8 Lab
15 Chapter 16: Therapeutic exercise for Joint Replacement; Chapter 17: Age Considerations; **Project Papers* Due**
17 in-class: ankle
22 in-class: knee (ACL/ TKR) and hip (THR)
24 in-class: shoulder (MDI/RTC) and elbow
29 **Exam #3 Chapters 11-13, 15-17**

May:

1 Presentations
6 Presentations

Course: HS549: Therapeutic Interventions II in Athletic Training
Time/Location: TBD; GH203 **Term:** Fall 2017
Instructor: Zach Garrett, MS, MHA, ATC/LAT **Email:** garrett46@Marshall.edu
Office: Gullickson Hall 203D **Mail:** GH108 **Phone:** 304-696-2924
Office Hours: MW 10am-11; TR 1-3pm; other times and F by appointment

Texts: Therapeutic Modalities 4th ed., Starkey (Required).
Therapeutic Exercise for Musculoskeletal Injuries 3rd ed., Houglum (Required)
The Rehabilitation Specialist Handbook 3rd ed., Rothstein, Roy, & Wolf (Required)

Prerequisites: Passing grade (C or better) in HS215.

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: Students in this course will be instructed in the traction, intermittent compression, laser, and massage modalities, and therapeutic exercise rehabilitation of the upper extremity and cervical spine. Discussion will also center on psychosocial interventions available for the athletic trainer. Special emphasis is given to the decision making processes involved with specific therapeutic intervention selection and parameter adjustment based upon patient pathologic responses and desired patient outcomes.

Learning Outcomes:	How students will practice each outcome in this Course:	How student achievement of each outcome will be assessed in this Course:
Explain the therapeutic indications and contraindications associated with traction, intermittent compression, laser, and massage, including demonstration of patient preparation, instruction, administration, and dosage of each modality.	• In-class discussions • Group work/practice assignments	• Chapter quizzes • Written exams • Research project
Explain the physiological principles associated with each modality identified above.	• In-class discussions • Group work/practice assignments	• Chapter quizzes • Written exams • Research project
Demonstrate proper patient preparation, instructions and positioning when performing exercises for the upper extremity and cervical spine.	• In-class discussions • Group work/practice assignments	• Chapter quizzes • Oral/Practical exams • Research project
Demonstrate the ability to perform various proprioceptive neuromuscular facilitation techniques for the upper extremity and cervical spine	• In-class discussions • Group work/practice assignments	• Chapter quizzes • Oral/Practical exams • Research project
Demonstrate the ability to perform joint mobilization techniques for the upper extremity and cervical spine	• In-class discussions • Group work/practice assignments	• Chapter quizzes • Oral/Practical exams • Research project
Given a joint or upper extremity injury location, identify isometric, isotonic and isokinetic exercises which can be used to facilitate recover	• In-class discussions • Group work/practice assignments	• Chapter quizzes • Written exams • Research project
Design a complete rehabilitation program for upper extremity and cervical spine injuries including proper progression measurements and goals for return to play	• In-class discussions • Group work/practice assignments	• Chapter quizzes • Written exams • Research project
Identify isometric, isotonic and isokinetic exercises which can be used to facilitate recovery of cervical spine and upper extremity injuries	• In-class discussions • Group work/practice assignments	• Chapter quizzes • Written exams • Research project
Explain the basic methodology of common surgical techniques for the cervical spine (eg: spinal fusion, interverberal disc repair).	• In-class discussions • Group work/practice	• Chapter quizzes • Written exams

	assignments	• Research project
Explain the basic methodology of common surgical techniques for the upper extremity (eg: Tommy John procedure, Rotator cuff repair, Bankhart procedure, SLAP lesion).	• In-class discussions • Group work/practice assignments	• Chapter quizzes • Written exams • Research project
Identify the testing protocols used for measuring muscular strength, speed, agility and flexibility	• In-class discussions • Group work/practice assignments	• Chapter quizzes • Written exams • Research project
Demonstrate the ability to appropriately document patient care, using appropriate terminology and procedural coding and complying with statutes the regulate privacy of medical records	• In-class discussions • Group work/practice assignments	• Chapter quizzes • Oral/Practical exams • Research project
Describe the psychosocial factors that affect persistent pain sensation and perception (eg, emotional state, locus of control, psychodynamic issues, sociocultural factors, personal values and beliefs) and identify multidisciplinary approaches for assisting patients with persistent pain	• In-class discussions • Group work/practice assignments	• Chapter quizzes • Written exams • Research project
Describe the psychological techniques (eg, goal setting, imagery, positive self-talk, relaxation/anxiety reduction) that the athletic trainer can use to motivate the patient during injury rehabilitation and return to activity processes	• In-class discussions • Group work/practice assignments	• Chapter quizzes • Written exams • Research project
Describe the psychological techniques (eg, goal setting, imagery, positive self-talk, relaxation/anxiety reduction) that the athletic trainer can use to motivate the patient during injury rehabilitation and return to activity processes	• In-class discussions • Group work/practice assignments	• Chapter quizzes • Written exams • Research project
Describe nutritional principles that apply to tissue growth and repair	• In-class discussions • Group work/practice assignments	• Chapter quizzes • Written exams • Research project
Describe the role of nutrition in enhancing performance, preventing injury or illness, and maintaining a healthy lifestyle	• In-class discussions • Group work/practice assignments	• Chapter quizzes • Written exams • Research project
Explain how changes in the type and intensity of physical activity influence the energy and nutritional demands placed on the client/patient	• In-class discussions • Group work/practice assignments	• Chapter quizzes • Written exams • Research project

Writing Intensive: This class is designated as a Marshall University Writing Intensive Course. Students will use writing skills to both document medical information in appropriate formats and improve his/her writing skills through graded and ungraded assignments throughout the course. Additionally, students will use professional, peer reviewed literature to support their writing.

Attendance policy: Attendance at class is mandatory. If you are unable to come to class (extreme cases only), please speak with me in person or leave a message on my voice mail or email PRIOR to class. To find information regarding class delays/cancellations due to inclement weather log onto www.marshall.edu or call (304) 696-696-6245 (audix) or 696-3170 (the university response number). **There is no excuse for lack of communication with the class instructor.**

- Qualified excused absences include: illness, family crisis, or approved institutional activity. If you miss class due to an acute illness, you must bring a note from your physician for an excused absence (note: this does NOT include routine medical appointments unless of a special nature and only then with prior written notice and approval). Students have one week to provide appropriate documentation to excuse an absence. The student is expected to have a personal schedule appropriate for class attendance.
- Exams/practicals: must be taken on or before their scheduled date. Students who miss an exam/practical due to approved unforeseen circumstances have a maximum of one week to make it up (those missed without an excuse will receive a grade of zero).
- Absenteeism at class will have the following effect on your grade: 5 points off participation grade for *each* absence; two tardies (5-10 minutes) count as an absence (10+ minutes is an absence—you are welcome to stay and learn); five cumulative *unexcused* absences will result in your being dropped from the course.

Social Justice: No one will be discriminated against on the basis of race, sex, ethnicity, age, sexual orientation, social class, abilities, or differing viewpoints. Each student will be viewed as a valuable part of this class.

Wireless Apparatus/Electronic Devices: All electronic devices (computers, phones, pagers, games, IPods, etc.) must be turned off at the beginning of each class unless the instructor specifically permits them for an in-class assignment. If a special circumstance arises (e.g. family emergency), notify the instructor before class to obtain permission to keep an electronic device on during class time.

Statement on learning disabilities: Reasonable accommodations will be made for students with diagnosed disabilities. Marshall University is committed to equal opportunity in education for all students, including those with physical, learning and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117, phone 304 696-2271 to provide documentation of their disability. Following this, the DSS Coordinator will send a letter to each of the student's instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing and grading. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, please visit http://www.marshall.edu/disabled or contact Disabled Student Services Office at Prichard Hall 11, phone 304-696-2271.

Honor code: Students found to have violated the honor code or plagiarize will be penalized; they will receive a zero on the assignment for the first offense; a second offense will result in a zero on the assignment and a two letter grade reduction in the course; a third offense is an automatic F in the course and recommended expulsion. The student will also be subject to dismissal from the athletic training program and/or Marshall University. For more information on Marshall's Academic Dishonesty policy go to: http://www.marshall.edu/president/board/Policies/MUBOG%20AA-12%20Academic%20Dishonesty.pdf. All offenders will be reported to the School of Kinesiology Chair and ATEP Director as per the program disciplinary policy.

Evaluation Process:

Quizzes (10):	100 pts
Labs	150pts
Practical/Oral exam (3):	150 pts
Midterm Written (2):	200 pts
Final Written:	200 pts
Research project	200 pts
Total	**1000 pts**

Course Grades:

A = 90 – 100%, B = 80 – 89%, C = 70 – 79%, D = 60 – 69%, F = below 60

Quizzes:

Announced and unannounced quizzes will be given throughout the semester during scheduled class times. These quizzes can cover all information presented prior to the quiz and following the previous quiz. If a quiz is missed the student will receive a zero, quizzes cannot be made up unless prior arrangements have been made.

Practical/Oral Exam:

During the semester, you will be tested 3 times on a practical examination that will last 15-20 minutes. The purpose of these examinations is to evaluate skills practiced during laboratory sessions as well as to assess the student's ability to interpret and communicate information accurately. The types of laboratory skills to be assessed in this course include discussion of:

1. The indications, contraindications and precautions for the therapeutic modalities covered in this course.
2. Safety regarding operating specific modalities

Written Exams:

During this course one midterm examination and one final examination will be administered. The format of these examinations will be multiple choice, true false, fill in the blank or short essay. Short essays regarding patient cases may

also be included. The midterm examination will test the material covered during the prior class meetings. The final written examination will be comprehensive for the whole course. Exams must be taken during the regularly scheduled class time unless there is an illness or family emergency. A doctor's excuse will be required in the event of illness. Any student absent from a regularly scheduled exam without a valid excuse will receive a score of zero. Exams cannot be made up unless prior arrangements have been made.

Attendance Policy:

You are expected to attend all classes. Qualified excused absences will be considered to be an illness, family crisis or approved institutional activity. This does not include routine medical appointments (unless of special nature and only with prior written notification and approval). A missed class must be verified, in writing, by Office of Student Affairs, in order to count as an excused absence. Unforeseeable absences will not be counted as excused unless the student provides the instructor with written documentation and verification within two days of the class missed. Students are expected to make up exams missed within one week of returning to class at a time mutually agreed upon with the instructor except with scheduled institutional activities which will be discussed AHEAD of time for a make-up schedule. Should an assignment be due on a missed day, then the assignment will be due the next class session. Being late to class is the same as a class absence.

Laboratory Attire:

When in the skills laboratory, loose fitting t-shirts or sport bras (females) are required for upper extremity modality application or for practice of upper extremity therapeutic exercise techniques.

Course Schedule;

	Topics
WEEKS 1-5	Intermittent Compression Therapeutic Massage Spinal Traction Laser and Light Therapy Differential Application of Therapeutic Modalities
WEEKS 6-8	Isometric, Isotonic, & Isokinetic exercises Joint mobilizations PNF
WEEKS 9-11	Surgical interventions/procedures Therapeutic Exercise program design Testing protocols
WEEKS 12-15	Psychosocial Interventions Nutritional Interventions

Chair: Tracy Christofero | **GC#7: Course Change**

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: COHP Dept/Division: School of Kinesiolog Current Alpha Designator/Number: HS 639

Contact Person: Joseph A. Beckett, EdD, ATC Phone: 304-696-2929

CURRENT COURSE DATA:

Course Title: Health Assessment for the Athletic Trainer

Alpha Designator/Number: H S 6 3 9

Title Abbreviation: H E A L T H A S S E S S M E N T

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 10/20/14
Registrar	Date 10/22/14
College Curriculum Chair	Date 10/23/14
Graduate Council Chair	Date 2-13-15

Request for Graduate Course Change - Page 2

College: COHP | Department/Division: School of Kinesiology | Alpha Designator/Number: HS 639

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

Change in CATALOG TITLE: ☒ YES ☐ NO

From: HEALTH ASSESS FOR THE AT (limited to 30 characters and spaces)

To: EXAM OF GEN MED CONDITIONS

If Yes, Rationale: The new title reflects the primary content of this 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: An indepth study of common problems and complaints of athletes and the proper method of evaluating those complaints.

To: A study of common general medical conditions and illnesses of physically active individuals and the proper methods of evaluating these complaints.

If Yes Rationale: The revised description more accurately reflects the title and associated content of this course.

Request for Graduate Course Change - Page 3

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 (May attach separate page if needed)

From

To

Rationale

Request for Graduate Course Change-Page 4

College: COHP

Department: School of Kinesiology

Course Number/Title HS 639, Examination of General Medical Conditions

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.

Not applicable

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

Request for Graduate Course Change - Page 5

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: School of Kinesiology
Current Course Number/Title: HS 639, Health Assessment for the Athletic Trainer
New Course Title: Examination of General Medical Conditions
Rationale: The new title more accurately reflects the content of this course
Catalog Description: An indepth study of common problems and complaints of athletes and the proper method of evaluating those complaints.

COURSE DESCRIPTION CHANGE
Department: School of Kinesiology
Course Number and Title: HS 639, Examination of General Medical Conditions
Rationale: The new description more accurately reflects the content that will be taught in this course
Course Description (old): An indepth study of common problems and complaints of athletes and the proper method of evaluating those complaints.
Course Description: (new): A study of common general medical conditions and illnesses of physically active individuals and the proper methods of evaluating these complaints.

Chair: Tracy Christofero | **GC#6: Course Addition**

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: COEPD Dept/Division: Leadership Studies Alpha Designator/Number: LS 628 (•) Graded ( ) CR/NC

Contact Person: Dr. Mike Cunningham Phone: 6-1912

NEW COURSE DATA:

New Course Title: Leading Nonprofit & Public Sector Organizations

Alpha Designator/Number: L S 6 2 8

Title Abbreviation: L E A D N P O & P U B L I C S e c t o r O r g

(Limit of 25 characters and spaces)

Course Catalog Description: (Limit of 30 words)
NonProfit & public sector organizations constitute a significant part of every community and this course is designed to examine the major leadership issues they encounter.

Co-requisite(s): N/A First Term to be Offered: Fall, 2015

Prerequisite(s): None Credit Hours: 3

Course(s) being deleted in place of this addition (*must submit course deletion form*): None

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

Dept. Chair/Division Head [signature]	Date 11-6-14
Registrar [signature] 130401	Date 12/17/14
College Curriculum Chair [signature]	Date 1/14/15
Graduate Council Chair [signature]	Date 2-13-15

Request for Graduate Course Addition - Page 2

College: COEPD Department/Division: Leadership Studies Alpha Designator/Number: LS 628

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.

Dennis M. Anderson

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.

N/A

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

N/A

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.

N/A

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.

N/A

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

Analyze internal & external problems that affect the leadership of nonprofit & public sector organizations.
Examine the relationship between nonprofit & public sector organizations and the communities they serve.
Explore the relationship between the governing board, staff, and volunteers of nonprofit & public sector organizations.
Analyze financial management issues facing nonprofit & public sector organizations.

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

History of nonprofit & public sector organizations in the US
Leadership and ethics
Board development
Financial management
Program evaluation & development
Strategic planning processes
Marketing and public relations
Political and advocacy processes
Capacity building

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

Michael J. Worth. Nonprofit Management: Principles and Practice. Thousand Oaks, CA: SAGE, 2009.
John Bryson. Strategic Planning for Public and Nonprofit Organizations: A Guide to Strengthening and Sustaining Organizational Achievement. San Francisco: Jossey-Bass. 2004
Mary Tschirhart and Wolfgang Bielefeld. Managing Nonprofit Organizations. San Francisco: Jossey-Bass. 2012.

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

Case studies, group activities, final project

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

analysis of case study responses
group activity evaluation
final project

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

N/A

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

Blazek, Jody. Financial Planning for Not-for-profit Organizations. John Wiley & Sons, Inc., New York: NY, 1996.

Brothers, John and Anne Sherman. Building Nonprofit Capacity: A Guide to Managing Change Through Organizational Lifecycles. Jossey-Bass, San Francisco, CA, 2011.

Chait, Richard, William Ryan and Barbara Taylor. Governance as Leadership: Reframing the Work of Nonprofit Boards. John Wiley & Sons, Inc., New York: NY, 2004.

Drucker, Peter. Managing the Nonprofit Organization. Harper Collins, New York: NY, 2006.

Getting Attention: Helping Nonprofits Succeed Through Successful Marketing http://gettingattention.org

Heyman, Darian R. Nonprofit Management 101. John Wiley & Sons, Inc., New York: NY, 2011.

Ten Keys to Successful Strategic Planning for Nonprofit and Foundation Leaders http://www.tccgrp.com/pdfs/per_brief_tenkeys.pdf

The Philanthropy Journal http://www.philanthropyjournal.org

Chair: Tracy Christofero | **GC#6: Course Addition**

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: COEPD Dept/Division: Leadership Studies Alpha Designator/Number: LS 640 (•) Graded ( ) CR/NC

Contact Person: Dr. Mike Cunningham Phone: 6-1912

NEW COURSE DATA:

New Course Title: Legal Issues for Nonprofit & Public Sector Organizations

Alpha Designator/Number: L S 6 4 0

Title Abbreviation: L e g a l I s s u e s N P O & P u b l i c

(Limit of 25 characters and spaces)

Course Catalog Description: (Limit of 30 words)
This course provides students with an overview of federal and state laws governing nonprofit and public sector organizations, current legal trends and legal issues affecting ceo's, staff, governing boards.

Co-requisite(s): N/A First Term to be Offered: Fall, 2015

Prerequisite(s): N/A 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 Mark Cyr	Date 1/19/14
Registrar Roberta Ferguson 130401	Date 1/13/15
College Curriculum Chair Lisa Burton (by SSH)	Date 1/14/15
Graduate Council Chair JChristofero	Date 2-13-15

Request for Graduate Course Addition - Page 2

College: COEPD Department/Division: Leadership Studies Alpha Designator/Number: LS 640

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.

Dennis M. Anderson

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)

Develop skills in researching, citing, and understanding case law as it pertains to nonprofit and public sector organizations
Examine liability issues for governing boards and staff
Proficiency in identifying legal terms and themes
Analyze emerging legal challenges nonprofit and public sector organizations will encounter

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

Organization and dissolution of a nonprofit organization
Fidicuiary responsibility of governing boards
Unrelated business tax
Lobbying and political campaigning
Charitable giving
Federal and state reporting requirements
Issues involved in using the internet for solicitation
Emerging legal challenges

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

Avner, M. (2002). The Lobbying and Advocacy Handbook for Nonprofit Organizations. St. Paul, MN: Amherst H. Willer Foundation
Hopkins, Bruce. (2005). Nonprofit Law Made Easy. New York, NY: John Wiley and Sons

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

legal briefs, case studies, discussion forums

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

critiques for legal briefs & case studies, final exam

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

N/A

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

Ali, Paul and Greg Gregorious (2006). International Corporate Governance After Sarbanes-Oxley. New York, NY: John Wiley & Sons

Brennen, David A. (2007). Introducing the Law of Nonprofit Organizations and Philanthropy. Lexington, KY: University of Kentucky College of Law publication

Duca, D.J. (1996). Nonprofit Boards: Roles, Responsibilities, and Performance. New York, NY: John Wiley & Sons

Hopkins, Bruce (2003). The Legal Responsibilities of Nonprofit Boards. BoardSource.

Sise, Dan. Legal Issues for Nonprofit Board Members. presentation, Soil & Water Conservation Annual Conference, July, 2010.

Wolf, Thomas (1999). Managing a Nonprofit Organization in the Twenty-First Century. New York, NY: Siman & Schuster

New York University School of Law
Brennan Center for Justice http://www.brennancenter.org
National Center on Philanthropy & the Law http://www.law.nyu.edu

Harvard University, Kennedy School of Government
Hauser Center for Nonprofit Organizations
http://www.ksghauser.harvard.edu

Brookings Institute
http://www.brook.edu

Charity Lobbying in the Public Interest
http://www.independentsector.org

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: Leadership Studies
Course Number and Title: LS 640 Legal Issues for Nonprofit and Public Sector Organizations
Catalog Description: This course provides students with an overview of federal and state laws governing nonprofit and public sector organizations, current legal trends, and legal issues affecting ceo's, staff, governing boards.
First Term Offered: Fall, 2015
Credit Hours: 3