1-29-2010

January 29, 2010

Liberty University

The Faculty Senate of Liberty University

Moderator	Moderator Elect	Secretary	Past Moderator	Exec. Comm. At Large	Chaplain	Parliamentarian
David Croteau	*Brian Melton*	*Mary Beth Grayson*	*Samuel Smith*	*Kurt Reesman Michael Jones*	*Gaylen Leverett*	*John Hugo*

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Senate Agenda
Friday, January 29, 2010, 10:00 am, DH 1104

Call to Order – *D. Croteau*

Invocation – *G. Leverett*

Administrative Comments – *G. Runion*

Presentation of Minutes – *M. B. Grayson*

Information Only –

Athletic Committee: Change in policy on competition during final exam week

Current Policy:
Athletic competition will not be scheduled during the published exam period. Moreover, no away competition shall be scheduled at least two days prior to the published final exam period.

Proposed Policy:
No away athletics competition may be scheduled the two days prior to Reading Day through the end of the last day of scheduled finals. Moreover, an athletics program may select two home dates of competition from the two days prior to Reading Day, Reading Day, and the Saturday during the final exam period. However, if an athletics program has an APR multi-year rate below 925 it may select only one date of competition during the permissible time frame. Competitions scheduled by the program's conference affiliate and NCAA post season competitions are exempt from this policy.

General Education Committee: "Integrative" courses

The committee was asked to consider whether the name of Integrative courses should be changed; it was decided "to table this issue until we are approached with a more institutional necessity or strategic reasoning for reconsideration."

Changes to Course Descriptions and Titles

- **Music and Humanities – Effective Spring 2010**

Existing:	**MUSC 182 Chamber Choir I**	1 hour
New:	**MUSC 182 Chamber Singers I**	1 hour

- **Health and Kinesiology – Effective Fall 2010**

Existing: **HLTH 453 Health Planning and Promotion** 3 hours
An introduction to organizational strategies relevant to business or government employment as Directors of Health Promotion and/or Employee Assistance Programs.

New: **HLTH 453 Program Planning and Evaluation in Health Education** 3 hours
A study of the theories, models, and processes that reflect best practice in assessment, planning, implementation, and evaluation of health education programming.

- **<u>Health and Kinesiology</u> – Effective Fall 2010**

Existing: **HLTH 380 Health Problems of the Aged** 3 hours
The study of major health problems and issues concerning older adults. Emphasis will be placed on prevention of disease and health promotion among older adults.

New: **HLTH 380 Health Promotion for Aging Populations** 3 hours
The study of the process of aging and the interrelationships among the five dimensions of health as they relate to aging. Emphasis is placed on health promotion and disease prevention at all ages as the path to living a full life in later years.

Correction to items from the November 13, 2009 meeting (effective Fall 2009, not Spring 2010):

Changes already approved by the Administration

- **Department of Communication Studies: Minor in Photography – Effective Fall 2009**

- **Helms School of Government and Department of Communication Studies: Minor in Crisis Communication – Effective Fall 2009**

Old Business (none)

New Business

<u>SB 0110-01</u> Changes to the B.A. in Pastoral Leadership and Biblical Exposition and to the B.S. in Pastoral Leadership (Pastoral Leadership) Effective Fall 2010
Note: In addition to the changes below, the proposals also correct out-of-date course numbers on each respective DCP.

1. B.A. in Pastoral Leadership and Biblical Exposition (Proposed Effective Date: Fall 2010)

   a. Current: Presently the B.A. requires taking either BIBL 472 (New Testament Backgrounds) or BIBL 473 (Old Testament Backgrounds).
   b. Proposed: add BIBL 480 (Hermeneutics) to the Pastoral Leadership and Biblical Exposition major. This class will be added by making it an option alongside of BIBL 472 (New Testament Backgrounds) and BIBL 473 (Old Testament Backgrounds). It will not add any hours to the degree.
   c. Rationale: Now that Hermeneutics is a class offered every semester at Liberty University, it would greatly benefit the students in this degree program to have it as a possible required class. The importance of proper hermeneutics for students in this major can hardly be overstated.
   d. Updated DCP:

Course	hrs.	sem. taken	grade
BIBL 324	3	_____	____
BIBL 350	3	_____	____
BIBL 472, 473, or 480	3	_____	____
BIBL 410	3	_____	____
BIBL 364	3	_____	____
BIBL 425	3	_____	____
CHHI 301 or 302	3	_____	____
GREK 401	3	_____	____
PLED 350	3	_____	____
PLED 421 or ~CHMN 387	3	_____	____
PLED 422 or ~CHMN 403	3	_____	____
PLED 450	3	_____	____

PLED 499	3	_____	____
THEO 350	3	_____	____

~ Women only

2. B.S. in Pastoral Leadership (Proposed Effective Date: Fall 2010)

   a. Current: Presently the B.S. requires taking YOUT 447 (Discipleship in Youth Ministry).
   b. Proposed: Replace YOUT 447 (Discipleship in Youth Ministry) with BIBL 480 (Hermeneutics) It will not add any hours to the degree.
   c. Rationale: Now that Hermeneutics is a class offered every semester at Liberty University, it would greatly benefit the students in this degree program to have it as a possible required class. The importance of proper hermeneutics for students in this major can hardly be overstated.
   d. Updated DCP:

CORE: (24 hours)

Course	hrs.	sem. taken	grade
BIBL 324	3	_____	____
BIBL 350	3	_____	____
BIBL 425	3	_____	____
BIBL 480	3	_____	____
CHHI 301 or 302	3	_____	____
ICST 461	3	_____	____
THEO 350	3	_____	____
CHMN 201	3	_____	____
~~YOUT 447~~	~~3~~	~~_____~~	~~____~~

SPECIALIZATION: Pastoral Leadership (24-27 hours)

GREK 301	3	_____	____
GREK 302	3	_____	____
PLED 350	3	_____	____
PLED 421 or ~CHMN 387	3	_____	____
PLED 422 or ~CHMN 403	3	_____	____
PLED 450	3	_____	____
PLED 499	3-6	_____	____
THEO 412 or BIBL 424	3	_____	____

~ Women only

SB 0110-02 New Course Proposals (Health and Kinesiology) Effective Fall 2010

HLTH 201 Applied Human Anatomy and Physiology Part 1 3 hours
Prerequisites: Students must be enrolled in the Health Promotion (CHES) program.
An examination of the structure, function, and pathology of the various body systems and their roles, relevance, and applications in health and illness. The course will employ virtual interactive cadaver dissection technology. The following topics will be covered in Part 1: introduction to the human body, the chemistry of life, the cells, tissues, and organization of the body, the blood, the cardiovascular system, the lymphatic system, the nervous system, the special senses, the endocrine system, and the respiratory system. Offered Fall semester only.

HLTH 202 Applied Human Anatomy and Physiology Part 2 3 hours
Prerequisites: HLTH 201, Students must be enrolled in the Health Promotion (CHES) program in order to register for HLTH 202.
A continuation of HLTH 201 which examines the structure, function, and pathology of the various body systems and their roles, relevance, and applications in health and illness. The course will employ virtual interactive cadaver dissection technology. The following topics will be covered in Part 2: introduction to nutrition, the digestive system, the urinary system, the skin, resistance and immunity, the musculoskeletal system, introduction to genetics, and the reproductive systems. Offered Spring semester only.

HLTH/CHMN 340 Women's Health Issues in Ministry for Women 3 hours
Prerequisites: Junior Status; Health Promotion major or minor or Religion major-Women's Ministry Specialization or minor; Female students only
A study of the dimensions of women's health from the Christian Worldview that allows students to not only develop health content resources, but also to explore and practice ways to minister to other women, throughout the lifespan, in formal and informal ministry settings. This course is open to female students only.

HLTH 301 Principles of Health Education 2 hours
Prerequisites: Sophomore status; Students must be enrolled in the Health Promotion (CHES) program. This course provides core information about the Health Education discipline. Professional topics such as the history of the profession, scope of practice, ethics, advocacy, membership in professional organizations, community responsibilities, preparation for job interviews, and preparation for the CHES exam are presented.

HLTH 360 Topics in Environmental Health 3 hours
Prerequisites: Math 110 or above, Chemistry 107 or above.
This seminar course will explore from multiple viewpoints established principles as well as current issues and trends regarding environmental health as it affects the political, economic, and social aspects of global health.

SB 0110-03 New B.S. in Materials Joining and Welding Engineering (Engineering) Effective Spring 2011

Abstract: The School of Engineering and Computational Sciences (SECS) proposes to begin a Materials Joining and Welding Engineering (MJWE) Program. Although this type of engineering curriculum is typically only offered at the graduate level, there are two institutions (i.e., LeTourneau University, Ohio State University) who offer this type of program at the undergraduate level. In starting this program, Liberty University will be only the third institution in the United States offering this type of program at the undergraduate level. One benefit quickly realized is that students can complete the program and gain valuable skills and experience in four years instead of five. However, this also explains why the program comprises a rather laborious 140 credit hours.

The proposed program will comprise 140 credit hours (46 courses). Of the 46 course which comprise the program, 15 (43 credits) will be new, eight (27 credits) are existing courses offered through SECS, and the remaining 23 courses (70 credits) are existing courses offered at Liberty. A student in the program will complete courses in Foundational and Investigative Studies, along with 67 hours in the major. Courses within the major include those in Computer Science (CSCI), Electrical Engineering (ENGE), general engineering (ENGR), Materials Joining & Welding Engineering (ENMJ) and Physics (PHYS). Enclosed are the following: Degree Completion Plan for the program, flowchart showing the proposed course sequence, syllabi for the 14 new proposed courses.

Curriculum: Below are listed the 22 course numbers and titles comprising the major for the proposed MJWE program. An asterisk (*) denotes each of the 15 new proposed courses. Catalog course descriptions for the 15 new courses are included herein. There are no electives in this program.

ENGR 110 Intro to Engineering/Prob. Solving
CSCI 111 Introduction to Programming
* ENMJ 115 Manuf. Processes Lab
* ENMJ 201 Materials Joining Fund.
* ENMJ 202 Joining Processes
ENGE 211 Intro. to Electrical Circuits
ENGE 212 AC Circuit Analysis
ENGI 220 Engineering Economy
* ENGR 230 Statics
* ENGR 240 Dynamics

* ENMJ 310 Materials Engineering
* ENMJ 313 Materials Science of Joining
PHYS 320 Thermodynamics
ENGE 321 Electronics
* ENGR 330 Mechanics of Materials
* ENMJ 351 Electrical Power Systems
* ENGR 360 Heat Transfer
* ENMJ 414 Joining of Adv. Materials
* ENMJ 424 Nondestructive Eval. of Mat.
* ENMJ 434 Mechatronics
* ENMJ 481 Senior Capstone Project I
* ENMJ 482 Senior Capstone Project II

ENGR 230 Statics 3 hours
Prerequisites: MATH 132 and PHYS 231* (* May be taken concurrently)
A study of force systems and equilibrium conditions from forces and moments acting upon structural bodies under static loads. Includes the study of vectors, free-body diagrams, shear and moment diagrams, centroids, moments of inertia and friction.

ENGR 240 Dynamics 3 hours
Prerequisites: ENGR 230 and MATH 231
A study of kinematics and kinetics of particles and rigid bodies, along with energy and momentum.

ENGR 330 Mechanics of Materials 3 hours
Prerequisite: ENGR 230
An analysis of the strength and deformation of deformable bodies; stress and strain at a point; Mohr's circle; axial, torsional and flexural loads; stress, strain and deflections in beams; and of columns.

ENGR 360 Heat Transfer 3 hours
Prerequisites: MATH 334 and PHYS 320
A study of steady and transient conduction, natural and forced convection, and radiation heat transfer, with applications to heat exchangers.

ENMJ 115 Manufacturing Processes Lab 1 hour
Prerequisite: None
Material joining and material removal overview using thermal processes, one lab period per week. Oxyacetyllene welding, brazing and cutting, Shielded Metal Arc and Gas Metal Arc processes are covered using carbon steels. Health hazards and safety issues are specially emphasized.

ENMJ 201 Materials Joining Fundamentals 3 hours
Prerequisites: ENGR 110 and ENMJ 115
An introduction to joining engineering materials, with emphasis on design of welded structures in metals, joining processes, power systems and nondestructive testing. Elements of metallurgical nonequilibrium phenomena, residual stresses and distortions, fracture mechanics and failure are covered. Two lecture periods and one lab period per week.

ENMJ 202 Joining Processes 3 hours
Prerequisite: ENMJ 201
Metallic, ionic, covalent and hydrogen bonds in metals, ceramics and polymers are discussed in the context of joint interfaces. Interface activation and energy delivery is categorized by the level of thermal and mechanical power sources used for soldering, brazing, adhesive bonding and welding. Traditional welding/joining processes, as well as modern hybrids are discussed for different industries. Engineering cost/benefit analysis is used to optimize processes for different production volumes. Automation and robotics, capital and maintenance costs are emphasized. Two lecture periods and one lab period per week.

ENMJ 310 Materials Engineering 3 hours
Prerequisites: CHEM 121, MATH 132 and PHYS 232
A study of crystal structure, solid state diffusion, phase equilibrium and phase transformations, and electrical and mechanical properties of metals, ceramics and polymers.

ENMJ 313 Materials Science of Joining 3 hours
Prerequisite: ENMJ 310
Non-equilibrium thermodynamic reactions associated with transient thermal cycles when joining metals, polymers and ceramics are taught. Heat Affected Zone metallurgical reactions are discussed in the context of other solid-state transformations in Fe, Al, Ni and Ti based alloy systems. Specific areas such as the Partially Melted Zone and Unmixed Zone properties are also included. Solidification cracking is explained in detail based on constitutional supercooling caused by solute segregation. Reheat cracking, liquation cracking and hydrogen induced cracking are explained. Avoidance of metallurgical defects, failure of structures with elements of NDE (Non Destructive Evaluation) and Fracture Mechanics is taught. Two lecture periods and one lab per week.

ENMJ 351 Electrical Power Systems 3 hours
Prerequisite: ENGE 321
Electrical power systems used for welding: transformers, rectifiers, SCRs, inverters, waveform control and operating characteristics for Constant Voltage, Constant Current and Drooping V-I curves. Fundamentals of electric arc plasma, role of shielding gases, anode and cathode voltage drop, automatic Arc Voltage Controller feedback systems are covered. Metal droplet transfer modes through the arc plasma are discussed in detail. Feed-forward algorithms and modern waveform pulsing techniques are presented and concepts of arc stabilization and their effect on weld quality are discussed. Finally, generation of power beams (electron and laser) are covered, together with arc-less resistance and capacitor discharge welding power supplies.

ENMJ 414 Joining of Advanced Materials 3 hours
Prerequisite: ENMJ 313
Advanced engineering materials (such as electronic- nano- and biomaterials) have to be joined using equally advanced joining technologies such as Vacuum Diffusion Bonding/brazing, Friction Stir Welding, Laser and Electron Beam hybrid welding, etc. Manufacturing technologies of major categories of advanced metals, polymers, ceramics and composites are discussed in the context of electronic and biomaterials applications.
Constitutional liquation and supercooling, ductility dip cracking and other complex non-equilibrium reactions are discussed in detail for advanced metals such as Ni-base superalloys, austenitic stainless steels, and Aluminum and Titanium alloys. Polymeric composites used in the aerospace industry are also included, together with joining of structural ceramics and ceramic matrix composites for biomaterials.

ENMJ 424 Introduction to Nondestructive Evaluation 3 hours
Prerequisite: ENMJ 310
Use of ultrasonic and electromagnetic techniques for NDE of material properties and dimensional analysis. Flaw detection based on Eddy current, Magnetic Particle and ultrasonic pulse-echo techniques are covered. Signal generation, acquisition and digital signal processing are studied in detail. Elements of Fracture Mechanics are covered (critical flaw size) compared to the Probability of Detection of the minimal NDE flaw size for each technique. Prediction of service life and avoidance of catastrophic failures, as well as ethical aspects of NDE are covered.

ENMJ 434 Mechatronics 3 hours
Prerequisites: ENGR 240, MATH 334 and PHYS 232
A study of the analysis and design of control systems that contain motors, sensors, and controllers, integrated with mechanical components and mechanisms. Coverage includes system modeling, dynamic analysis, controller design, motor analysis and applications.

ENMJ 481 Senior Capstone Project I 3 hours
Prerequisite: Senior standing
Capstone Design incorporating all engineering concepts on materials, processes, design, performance prediction and non-destructive testing on welded/joined assemblies. Perform real-life Engineering functions such as manage individuals, schedule effectively, work in teams, and communicate in a timely manner.

ENMJ 482 Senior Capstone Project II 3 hours
Prerequisite: ENMJ 481
Capstone Design incorporating all engineering concepts on materials, processes, design, performance prediction and non-destructive testing on welded/joined assemblies. Perform real-life Engineering functions such as manage individuals, schedule effectively, work in teams, and communicate in a timely manner.

LIBERTY UNIVERSITY

School of Engineering and Computational Sciences
Degree Completion Plan (DCP)

B.S. in
Materials Joining Engineering

Name _____ ID _____

GENERAL EDUCATION REQUIREMENTS (61 hours)
ALL GENERAL EDUCATION COURSES MUST BE CHOSEN FROM THE LIST OF "APPROVED RESIDENTIAL GENERAL EDUCATION & INTEGRATIVE COURSES." (www.liberty.edu/gened)

FOUNDATIONAL STUDIES (17 hours)
MUST be completed within the first 45 hours of a student's program. Transfer students must complete within their first year at Liberty.

Course	Hrs.	Sem. Taken	Grade
ENGL 101 Composition and Rhetoric	3	_____	_____
ENGL 102 Composition and Literature	3	_____	_____
COMS 101 Speech Communication	3	_____	_____
MATH 131 Calculus/Analytic Geometry I	4	_____	_____
GNED 101 Contemporary Issues I	1	_____	_____
GNED 102 Contemporary Issues II	1	_____	_____
EVAN 101 Evangelism and Christian Life	2	_____	_____

Technology Competency Sem. Passed _____

INVESTIGATIVE STUDIES (44 hours)

ENGL 201, 202, 215, 216, 221, or 222	3	_____	_____
PHYS 231 University Physics I	4	_____	_____
PHYS 232 University Physics II	4	_____	_____
CHEM 121 General Chemistry I	4	_____	_____
CHEM 122 General Chemistry II	4	_____	_____
HIUS 221 or 222 or HIEU 201 or 202	3	_____	_____
ENGR 270 Technical Writing for Engineers	3	_____	_____
HUMN 101, THEA 101, VCAR 105, or MUSC 103	3	_____	_____
MATH 132 Calculus/Analytic Geometry II	4	_____	_____
THEO 201 Theology Survey I	3	_____	_____
THEO 202 Theology Survey II	3	_____	_____
BIBL 105 Old Testament Survey OR ^BIBL 205 Old Testament Life/Literature	3	_____	_____
BIBL 110 New Testament Survey OR ^BIBL 210 New Testament Life/Literature	3	_____	_____

^Options available to Honors students

7/1/09

MAJOR: MATERIALS JOINING (67 hours)

Course	Hrs.	Sem. Taken	Grade
CSCI 111 Intro. to Programming	3	_____	_____
ENGR 110 Introduction to Engineering/ Problem Solving	3	_____	_____
ENMJ 115 Manufacturing Process Lab	1	_____	_____
ENMJ 201 Material Joining Fundamentals	3	_____	_____
ENMJ 202 Joining Processes	3	_____	_____
ENGE 211 Intro. to Electrical Circuits	4	_____	_____
ENGE 212 AC Circuit Analysis	4	_____	_____
ENGI 220 Engineering Economy	3	_____	_____
ENGR 230 Statics	3	_____	_____
ENGR 240 Dynamics	3	_____	_____
ENMJ 310 Materials Engineering	3	_____	_____
ENMJ 313 Materials Science of Joining	3	_____	_____
PHYS 320 Thermodynamics	3	_____	_____
ENGE 321 Electronics	4	_____	_____
ENGR 330 Mechanics of Materials	3	_____	_____
ENMJ 351 Power Systems (w/lab)	3	_____	_____
ENGR 360 Heat Transfer	3	_____	_____
ENMJ 414 Joining of Advanced Materials	3	_____	_____
ENMJ 424 Nondestructive Evaluation of Materials	3	_____	_____
ENMJ 434 Mechatronics	3	_____	_____
ENMJ 481 Senior Capstone Project I	3	_____	_____
ENMJ 482 Senior Capstone Project II	3	_____	_____

QUANTITATIVE STUDIES (10 hours)

ENGR 210 Probability/Statistical Methods	3	_____	_____
MATH 231 Calculus/Analytical Geom. III	4	_____	_____
MATH 334 Differential Equations	3	_____	_____

GRADUATION REQUIREMENTS (2 hours minimum)

CRST 290 History of Life	2-3	_____	_____
FRSM 101 Freshman Seminar	REQ.____	MET____	

TOTAL – 140 hours minimum required. (Of this total, at least 40 hours must be 300-400 level.)

<u>SB 0110-04</u> New Course Proposals (Government) Effective Fall 2010

GOVT 383 History and Nature of Intelligence Tools 3 hours
Prerequisite: GOVT 200
This course will study intelligence tools and their utilization within an institutional context. This course is not designed to teach students how to use intelligence tools but rather to give them an understanding of what constitutes an intelligence tool, how those tools have been developed over time, and how they support the consumers of intelligence products.

GOVT 482 Counter-Intelligence 3 hours
Prerequisite: GOVT 380
This course is an upper division study of counter-intelligence from the analytical and operational perspectives. It focuses on the security phase of intelligence covering those activities devoted to destroying the effectiveness of hostile competition's intelligence activities and to protecting one's own information and intelligence methods.

Prayer

Adjournment