University Curriculum Committee
February 10, 2022 Meeting Minutes

The University Curriculum Committee met on **Thursday, February 10** at 3:00 p.m. via Zoom Meeting.

Members Present:

Melinda Anderson	Julie Baker	Jeff Boles	Brittany Copley
Lori Maxwell	Kim Hanna	Martin Sheehan	Jerry Gannod
Mike Gotcher	Stephen Robinson	Sharon Huo	Jeremy Wendt, Chair
Linda Null	Holly Stretz	Barbara Jared	Ben Mohr
Bruce Greene	Wesley Pech	Janet Whiteaker	Brandi Fletcher
Jeff Roberts	Colin Hill	Jennifer Shank	Chris Brown
Kent Dollar	Mohan Rao	Allen MacKenzie	Steven Sharp
Lisa Zagumny	Darron Smith	Brenda Wilson	Kim Winkle
Julie Galloway	Christy Killman	LTC James Bryant	Steve Frye
Michael Allen	Rita Barnes	Allan Mills	

Members Absent:

Jeannette Luna	Lori Bruce	Chris Wilson	Fred Vondra
Thomas Timmerman	Thomas Payne	Richard Rand	Brandon Johnson
Kayla Sorensen, Student	Melody Roth, Student	Mariam Abbas, Student	Savannah Griffin, Student
Addison Dorris, Student	Doug Bates	Stephanie Kazanas	

Official Representative(s):

Kumar Yelamarthi FOR	Joseph Slater		

Guest(s):

Simone McKelvey	Elizabeth Propes	Michael Rogers	Mary McCaskey

Outline of Proceedings:

1.	Approval of Agenda	**10.**	Chemical Engineering
2.	Approval of October 28, 2021 Minutes	**11.**	Computer Science
3.	Mathematics	**12.**	Electrical & Computer Engineering
4.	Nursing	**13.**	Mechanical Engineering
5.	Human Ecology	**14.**	Art, Craft & Design
6.	History	**15.**	Interdisciplinary Studies
7.	English	**16.**	Agriculture
8.	Chemistry	**17.**	Music
9.	Civil and Environmental Engineering	**18.**	Other Such Matters

Proceedings:

Perceiving a quorum, Dr. Jeremy Wendt, Chair of Committee, called the meeting to order at 3:01pm via Zoom.

1. **Approval of agenda**

   Motion to approve. Lisa Zagumny
   Second. Julie Baker
   Vote. Motion carried.

2. **Approval of minutes, October 28, 2021**
   Motion to approve. Lisa Zagumny
   Second. Julie Baker
   Vote. Motion carried.

3. **Mathematics**
   A. **Course Deletion.**
      1) MATH 1130 College Algebra *Lec. 3. Credit 3*

         Justification:
         MATH 1130 and MATH 1710 Pre-Calculus Algebra are virtually identical. Deleting MATH 1130 will eliminate the redundancy of scheduling and teaching to identical courses with different course numbers. MATH 1130 is not an exclusive pre-requisite to any other course. The courses with MATH 1130 as a pre-requisite list a C or better in MATH 1130 or MATH 1710. The deletion of this course will streamline the Math Department's offerings easing scheduling and staffing issues.

   B. **Course Changes.**
      1) **From**:
         MATH 1710: Pre-Calculus Algebra.

         Course Description: Review of algebra; relations and functions and their graphs, including polynomial and rational functions; conic sections; inequalities, arithmetic and geometric sequences and series. Lec. 3. Cr. 3. Pre-requisite: A minimum ACT Math sub-score of 22 or SAT Math sub-score of 520 or COMPASS Algebra score of 60, OR a minimum grade of C in MATH 1000.

         To:
         MATH 1710: Pre-Calculus Algebra.

         Course Description: Manipulation of algebraic expressions; equations; relations and functions and their graphs, including polynomial, rational, exponential, and logarithmic functions; inequalities. Lec. 3. Cr. 3. Pre-requisite: A minimum ACT Math sub-score of 19, or completion of Learning Competencies 1 through 5, or a minimum grade of C in MATH 1000.

C. Course Changes.

1) From:
MATH 1720: Pre-Calculus Trigonometry.
Pre-requisite: A minimum ACT Math sub-score of 22 or SAT Math sub-score of 520 or COMPASS Algebra score of 60, OR a minimum grade of C in MATH 1000.

To:

MATH 1720: Pre-Calculus Trigonometry.
Pre-requisite: A minimum ACT Math score of 22, or a minimum grade of C in MATH 1000, or C or better in MATH 1710, or equivalent.

D. Course Changes.

1) MATH 1830 Applied Calculus

From:
Pre-requisite: ACT mathematics score of 25 or above and three years of high school mathematics including algebra and geometry; or, special permission of the Mathematics Department; or, C or better in MATH 1130 or MATH 1710, or equivalent.

To:
Pre-requisite: ACT mathematics score of 25 or above and three years of high school mathematics including algebra and geometry; or, special permission of the Mathematics Department; or, C or better in MATH 1710, or equivalent.

2) MATH 3070 Statistical Methods I

From:
Pre-requisite: ACT mathematics score greater than or equal to 19; or C or better in MATH 1130 or MATH 1710 or equivalent.

To:
Pre-requisite: ACT mathematics score greater than or equal to 19; or C or better in MATH 1710 or equivalent.

Motion to approve. Lisa Zagumny
Second. Julie Baker
Vote. Motion carried.

4. <u>Nursing</u>

A. Addition of New Concentration.

1) We are experiencing a national professional nursing shortage predicted to extend past the year 2030, with the greatest impact noted in the southern and western states of the U.S. This shortage directly impacts access to nursing care and the quality of nursing care. The shortage has been compounded by the COVID 19

pandemic with acute care facilities limiting admissions secondary to a lack of Registered Nurses to provide the needed care.
While the WHSON has graduated several cohorts of 2nd degree students we believe the development of a new concentration aimed to address the needs of the 2nd degree adult will assist with recruitment and improve retention while maintaining an accelerated program of study allowing for a 15-month completion (upper division) as compared to the 27-month upper division program of study of the traditional BSN student. This provides the WHSON with 3 graduating classes of nurses eligible to sit for licensure each year and contributes to the community, state and national need for Registered Nurses.

Financial Impact: Course Development costs for 4 courses (NURS 4260, 4345, 4550, 4600). These costs will be covered by the School of Nursing.

The WHSON is proposing a 63-credit hour concentration in the Bachelor of Science program. The new concentration will be a 2nd Degree Accelerated BSN concentration with a May start date and an August completion date the following year.

Admission Criteria:

- Admission to Tennessee Tech University
- Completed 2nd Degree Accelerated BSN application
- Previous Bachelor's degree from an accredited university or college
- A grade of "C" or higher in the following courses: CHEM 1010 or its equivalent, BIOL 2010 and 2020 (Anatomy and Physiology I and II) or its equivalent BIOL 3230 (Microbiology) or its equivalent NOTE: these requirements must be completed prior to starting the NURS coursework
- Students who did not complete American History in their previous degree program may need to complete these courses before enrolling

Admission into the nursing program as a 2nd Degree student is a competitive process and student nursing applications will be reviewed by the Nursing Admissions and Credits Committee.

New cohorts will begin classes every May.

2) **Course Additions**.
   a. NURS 3245 Pharmacology I for the 2nd Degree Student (3 credit hours)
   Course Description: Introduction to drug classifications, mechanisms of action, and management of medications. Includes study and test-taking skills and may include experiential learning experiences/activities.
   Prerequisites: Admission to 2nd Degree ABSN or faculty approval

   b. NURS 3310 Mental Health Nursing for the 2nd Degree Student (3 credit hours)
   Course Description: This course focuses on the professional nursing care of patients with acute and chronic psychiatric health needs and introduces the students to concepts related to the human responses to stress, mental

illness and mental health. Emphasis is placed on communication and the use of the nursing process in meeting the psychosocial and physical needs of the individuals.
Prerequisites: NURS 3265, NURS 3266, NURS 3275, NURS 3276, NURS 3245
Co-requisite: NURS 3311

c. 3311 Mental Health Nursing for the 2nd Degree Student: Lab (2 credit hours) (60 contact hours)
Course Description: This course emphasizes therapeutic communication skills, critical thinking and therapeutic nursing care in a variety of mental health settings. Legal and ethical considerations for the nurse and mental health client are also included. Experiences may include acute inpatient, outpatient, residential, and community settings and may include substance abuse treatment facilities.
Prerequisites: NURS 3265, NURS 3266, NURS 3275, NURS 3276, NURS 3245
Co-requisite: NURS 3310

d. NURS 3340 Medical Surgical Nursing I for the 2nd Degree Student (4 credit hours)
Course Description: This course focuses on the professional nursing care of patients with acute and chronic medical-surgical health needs. The 2nd degree student is introduced to nursing theory and concepts related to human responses to illness. Emphasis is placed on nursing process and therapeutic communication in meeting the physical and psychosocial needs of individuals. This course introduces the 2nd degree student to the nurse/client relationship and concepts of psychosocial aspects of health and incorporates pathophysiology, growth and development, culture, and legal/ethical issues in nursing care.
Prerequisites: NURS 3265, NURS 3266, NURS 3275, NURS 3276, NURS 3245
Co-requisite: NURS 3341

e. NURS 3341 Medical Surgical Nursing I for the 2nd Degree Student: Lab (3 credit hours) (135 contact hours)
Course Description: This course emphasizes the application of nursing skills and nursing process for 2nd degree students to meet the physiological and psychological needs of individuals in the acute care setting. Professional issues of responsibility, accountability, collaboration, and ethical/legal issues are introduced in this course and evaluated in the class and clinical setting.
Prerequisites: NURS 3265, NURS 3266, NURS 3275, NURS 3276, NURS 3245
Co-requisite: NURS 3340

f. NURS 3345 Pathophysiology I for the 2nd Degree Student (2 credit hours)
Course Description: The focus of the course is to provide the 2nd degree professional nurse with an understanding of pathophysiological principles as the basis for nursing assessment and therapeutic intervention and

emphasizing the physiological responses to various common diseases, disorders, and disruptions affecting humans. Major diseases will be explored, in part by using a conceptual approach.
Prerequisites: NURS 3265, NURS 3266, NURS 3275, NURS 3276, NURS 3245

g. NURS 3440 Medical Surgical Nursing II for the 2nd Degree Student (4 credit hours)
Course Description: This course emphasizes medical-surgical theory and introduces the 2nd degree student to basic teaching/learning principles for practice with introduction to medical-surgical nursing concepts as applied to individuals, families, and community groups. The medical-surgical content provides a basis for responding to complex health patterns and specific pathophysiological processes through application of the nursing process. Communication skills, professional development of the nurse, teaching/learning principles, ethical/legal, and economic issues are integrated throughout the course.
Prerequisites: NURS 3340, NURS 3341, NURS 3345
Co-requisite: NURS 3441

h. NURS 3441 Medical Surgical Nursing II for the 2nd Degree Student: Lab (3 credit hours) (135 contact hours)
Course Description: This course emphasizes the application of the nursing process in a variety of medical/surgical settings. Second degree students utilize therapeutic communication, critical thinking, and nursing intervention in the nursing care of adult patients. Professional development of the nurse and ethical/legal and economic issues are incorporated throughout the course.
Prerequisites: NURS 3340, NURS 3341, NURS 3345
Co-requisite: NURS 3440

i. NURS 4260 Women's Health, Perinatal Care & Nursing Care of Children (5 credit hours)
Course Description: This course focuses on concepts of professional nursing care of women in their childbearing years, children and their families. This course encompasses knowledge of growth and development, culture, family, and pathophysiology from the natural and social sciences, and liberal arts in assessing, implementing, and evaluating the health needs of these populations.
Prerequisites: NURS 3340, NURS 3341, NURS 3345

j. NURS 4345 Pathological Processes & Pharmacological Concepts II (3 credit hours)
Course Description: This course will integrate science and skills of pathophysiology and pharmacology addressing physiological adaptations, pharmacological effects, health promotion, and disease prevention for major acute disease processes. Major diseases will be explored, in part by

using a conceptual approach. The focus of the course is to provide the professional nurse with an understanding of pathophysiological and pharmacological principles as the basis for nursing assessment and therapeutic intervention
Prerequisites: NURS 3340, NURS 3341, NURS 3245, NURS 3345

k. NURS 4550: Critical Care Nursing (2 credit hours)
Course Description: This course introduces the student to critical care concepts which may be applied to individuals, families, and community groups. The critical care content provides a basis for responding to complex health patterns and specific pathophysiological processes. Through application of the nursing process students learn to provide complex therapeutic nursing interventions. Continued development of communication skills, professional development of the nurse, teaching/learning principles, ethical/legal, and economic issues are incorporated throughout the course.
Prerequisites: NURS 3440, NURS 3441, NURS 4345

l. NURS 4600 Lifespan Clinical Immersion (6 credit hours) (270 contact hours)
Course Description: This comprehensive clinical immersion guides the student to apply concepts associated with the human lifespan, which may be applied to individuals, families, and community groups in various stages of illness, including critical care. The lifespan clinical immersion provides a basis for leading and managing complex health patterns and specific pathophysiological processes of pediatric, adult, and elderly clients. Through application of the nursing process students learn to provide complex therapeutic nursing interventions. Continued development of communication skills, professional development of the nurse, knowledge of growth and development, teaching/learning principles, ethical/legal, and economic issues are incorporated throughout the course.
Prerequisites: NURS 3440, NURS 3441, NURS 4345, 4201, 4260
Co-requisites: NURS 4550, 4750

m. NURS 4750 Leadership and Management for the 2nd Degree Student (3 credit hours)
Course Description: The focus of this course is the introduction of concepts of leadership and management for 2nd degree students as they transition into professional practice.
Prerequisites: NURS 3440, NURS 3441, NURS 4345, 4201, 4260, 4550
Co-requisites: NURS 4600

3) Course Changes.

1) From:
NURS 4201 Women's Health & Perinatal Nursing for the 2nd Degree Student: Lab (3 credits)
Prerequisites: NURS 3261, 3280

Co-requisite: NURS 4200

To:
NURS 4201 Women's Health & Perinatal Nursing for the 2nd Degree Student: Lab (3 credits)
Pre and/or Co-requisite: NURS 4260

Justification: NURS 4200 will not be taught in this concentration and will be replaced by a combined Perinatal and Pediatric Nursing course (4260).

Motion to approve. Lisa Zagumny
Second. Julie Baker
Vote. Motion carried.

5. **Human Ecology**
   A. **Academic Program Modification Changes.**

From:
B.S. in Human Ecology concentrations (Housing and Design and Merchandising and Design)

To:
B.S. in Design Studies with concentrations in Architecture and Interior Design and Fashion Merchandising and Design

Justification: The School of Human Ecology currently provides one degree, a Bachelor of Science degree in Human Ecology that includes six concentrations. The combined Housing and Design and Merchandising and Design concentrations have comprised approximately 30% of the total enrollment over the past 5 years (Average of 66 students). The average number of graduates in these two concentrations is 17 over the past 5 years. Potential and current students comment frequently that they did not know TN Tech had Design programs as they could not find the programs of study when searching the TN Tech website under the degree name Human Ecology. Alumni and potential employers oftentimes have commented that the design programs in the School of Human Ecology would be more visible if the degree name more accurately reflected the design content.

Potential Impact of Modification on Current Program

Effective Date: Fall 2022

Financial Impact: None

Motion to approve. Lisa Zagumny
Second. Julie Baker
Vote. Motion carried

B. Course Additions.

1) HEC 1125 Design Visualization Techniques Lec 3. Cr.3
Application of visualization techniques for design purposes.

2) HEC 3360 Rural Development and Service Learning Credit 1, 2, or 3
Department approval. Minimum overall GPA 2.5. Junior or Senior Standing.
Service Learning experiences in a variety of professional settings. Emphasis on rural development in communities related to design and the built environment.

3) HEC 4326 Spatial Design Lec 3 Credit 3.
Prerequisites: HEC 1110, Human Ecology major, Junior or Senior Standing
Application of spatial design in the lived environment.

Curriculum Changes.

4) Family and Consumer Sciences Education (HEED) Curriculum

From:
Sophomore Year PSY 2210 Educational Psychology 3 credits

To:
Sophomore Year – Remove PSY 2210
ADD: HEC 2041 Aspects of Housing and Furnishings 3 credits
Total credits remains at 18 credits for first semester of sophomore year

5) **From**:
Merchandising and Design Curriculum
First Semester Sophomore Year: Elective Credit 3

To:
First Semester Sophomore Year: Remove Elective Credit 3
Add HEC 1125 Design Visualization Techniques Credit 3
Total credits remain at 15 credits.

6) **From**:
Merchandising and Design Curriculum
First Semester Senior Year Upper Division Business Elective Credit 3

To:
First Semester Senior Year Remove Upper Division Business Elective Credit 3
Add: HEC 4325 Spatial Design 3 credits
Total credits remain at 15 credits

7) **From**:
Housing and Design Curriculum
First Semester Sophomore year DS 2810 3 credits

To:
First Semester Sophomore Year Remove DS 2810
Add HEC 1125 Design Visualization Techniques 3 credits
Total Credits remain 15 credits

8) **From**:
First Semester Senior Year Humanities 3 credits

To:
First Semester Senior Year Remove Humanities and move it to Second Semester Sophomore Year
Add: To First Semester Senior Year, HEC 4326 Spatial Design 3 credits
Total Credits of First Semester Senior remains 15 credits

Second Semester Sophomore Year with Humanities Added – Total credits become 18 credits

9) **From**:
HEC 4910 Internship in Child Development and Family Relations Credit 6,8,12
Prerequisite: Department Approval. Minimum overall GPA 2.75. Minimum overall GPA of 3.0 in Human Ecology courses. Approval of advisor to include: analysis of coursework, application, and placement at facility. Supervised practical experience in a variety of professional settings.

To:
HEC 4910 Internship in Human Development and Family Science Credit 4,6,8,12
Prerequisite: Department Approval. Minimum overall GPA 2.75. Minimum overall GPA of 3.0 in Human Ecology courses. Approval of advisor to include: analysis of coursework, application, and placement at facility. Supervised practical experience in a variety of professional settings.

10) **From**:
HEC 4055 Developing Professional Resilience Lec 1 Credit 1
Concepts of nurturing a self-care mindset, creating healthy boundaries, integrating resiliency and prioritizing a self-care plan, in order to promote a positive work/life balance.

To:
HEC 4055 Resilience in the Workplace Lec 1 Credit 1
Integrating resilience and adaptability for success in the workplace, exploring the value of health and wellbeing, concepts of nurturing a self-care mindset.

11) **From**:
HEC 1150 Analysis of Apparel and Findings Lec 3 Credit 3

To:
HEC 1150 Analysis of Product Development Lec 3 Credit 3

12) **From**:
HEC 3350 Merchandising I Lec 3 Credit 3

To:
HEC 3350 Business Aspects of the Design Industry Lec 3 Credit 3

13) **From**:
HEC 2041 Aspects of Housing and Furnishings Lec 3 Credit 3

To:
HEC 2041 Aspects of the Built Environment Lec 3 Credit 3

14) **From**:
HEC 4315 Global Social Responsibility Lec 3 Credit 3

To:
HEC 4315 Global Social Sustainability Lec 3 Credit 3

15) **From**:
HEC 4360 Merchandising II Lec 3 Credit 3

To:
HEC 4360 Buying Principles for the Design Industry Lec 3 Credit 3

16) **From**:
HEC 4340 History of Furnishings and Dress Lec 3 Credit 3

To:
HEC 4340 Classical History of Architecture, Furnishings and Dress Lec 3 Credit 3

17) **From**:
HEC 4460 Historical and Contemporary Architecture and Furnishings Lec 3 Credit 3

To:
HEC 4460 Contemporary History of Architecture, Furnishings and Dress Lec 3 Credit 3

Motion to approve. Lisa Zagumny
Second. Julie Baker
Vote. Motion carried

6. **History**
   A. **Curriculum Changes.**

1) Delete HIST 1066 (Univ 1020) from the Curriculum of the B.S. in History (and the Undergraduate Catalog) and reduce the number of semester credit hours listed under Freshman Year - First Semester from 14 to 13.

2) Change the number of credit hours for Foreign Language listed under Sophomore Year - First Semester from 2-3 credits to 3 credits.

3) Move Elective or minor Credit (3 hours) from Sophomore Year - First Semester to Senior Year - Second Semester.

a. Reduce the number of semester credit hours listed under Sophomore Year - First Semester to from 17 to 15.

b. Increase the number of semester credit hours listed under Senior Year - Second Semester from 13 to 16.

Motion to approve. Lisa Zagumny
Second. Julie Baker
Vote. Motion carried

7. <u>English</u>

A. Course Addition.

1) ENGL 4470 (5470) Topics in Advanced Creative Writing
Lec. 3. Credit 3.
Prerequisite: ENGL 4430 or ENGL 4440 or ENGL 4450, or prior consent of the instructor. Thematic, genre-based, or research-inflected creative writing workshop, at a level of advanced practice. Course may be repeated provided the content is different each time. Possible topics include Creative Research, Witness Writing, Social Issues, Identity, and Multimedia

Course Changes.

2) **From:**
ENGL 3400 – Introduction to Creative Writing
Lec. 3. Credit 3.
Prerequisite: At least a grade of C or better in one Sophomore-Level literature course (ENGL 2130, ENGL 2235, ENGL 2330) or a grade of C or better in ENGL 3810, ENGL 3820, ENGL 3910 or ENGL 3920, or consent of instructor. An introductory-level creative writing course in at least two genres: fiction, poetry, literary nonfiction, or drama. Genres to be determined by the instructor.

To:
ENGL 2400 – Introduction to Creative Writing
Lec. 3. Credit 3.
~~Co-requisite: ENGL 1020.~~ An introductory-level creative writing course in at least two genres: fiction, poetry, literary nonfiction, or drama. Genres to be determined by the instructor.

Corequisite: ECSP 4872. Performance based clinical experience in authentic settings involving planning appropriate instruction based on student's needs, creating a positive learning environment, communicating and collaborating with colleagues and others, effectively assessing student learning and reflecting on practice. A minimum grade of B is required to meet degree requirements.

Friendly Amendment: Corequisite: ENGL 1020 should say "Prerequisite: ENGL 1020 can be taken concurrently"

Prerequisite changes.

3) **From:**
ENGL 4430 (5430) Creative Writing: Fiction. Prerequisites: Grade of C or better in ENGL 3400 or prior consent of the instructor.

To:
ENGL 4430 (5430) Creative Writing: Fiction. Prerequisites: Grade of C or better in ENGL 2400 or prior consent of the instructor.

4) **From**:
ENGL 4440 (5440) Creative Writing: Essay. Prerequisites: Grade of C or better in ENGL 3400 or prior consent of the instructor.

To:
ENGL 4440 (5440) Creative Writing: Essay. Prerequisites: Grade of C or better in ENGL 2400 or prior consent of the instructor.

5) **From**:
ENGL 4450 (5450) Creative Writing: Poetry. Prerequisites: Grade of C or better in ENGL 3400 or prior consent of the instructor.

To:
ENGL 4450 (5450) Creative Writing: Poetry. Prerequisites: Grade of C or better in ENGL 2400 or prior consent of the instructor.

6) **From**:
ENGL 4460 Literary Magazine Editing and *The Iris Review.* Prerequisites: Grade of C or better in ENGL 3400 or prior consent of the instructor.

To:
ENGL 4460 Literary Magazine Editing and *The Iris Review*. Prerequisites: Grade of C or better in ENGL 2400 or prior consent of the instructor.

Curriculum Changes.

7) Change requirements in Creative Writing Concentration so that ENGL 4470 is on the list of course options through which students can fulfill concentration requirements.

From:
Students in the Creative Writing Concentration take 12 hours from the following courses: ENGL 4430 (5430), ENGL 4440 (5430), ENGL 4450 (5450), ENGL 4460, and ENGL 4620 (5620). (ENGL 4430, ENGL 4440, and ENGL 4450 may be repeated for credit provided the content is different each time.)

To:
Students in the Creative Writing Concentration take 12 hours from the following courses: ENGL 4430 (5430), ENGL 4440 (5430), ENGL 4450 (5450), ENGL 4460, ENGL 4470 (5470), and ENGL 4620 (5620). (ENGL 4430, ENGL 4440, ENGL 4450, and ENGL 4470 may be repeated for credit provided the content is different each time. ENGL 4460 may be repeated once provided the content is different.)

Curriculum Changes: 4-year plan

8) Reorder sequence by moving renumbered class ENGL 2400 from Second Year to First Year, moving an English (Approved Course) from Fourth Year to Second Year, and moving Humanities/Fine Arts Elective from First to Fourth Year.

Motion to approve. Lisa Zagumny
Second. Julie Baker
Vote. Motion carried

8. <u>Chemistry</u>

A. Course Description Changes.

1) CHEM 1110: General Chemistry I – Lec. 3, Lab 3, Credit 4

From:
Basic course in General Chemistry for curricula requiring more than one year of Chemistry. Laboratory includes qualitative analysis procedures.

To:
General chemistry course for students pursuing a degree in a STEM-related field. Topics include atomic and molecular level structure and properties, stoichiometry, aqueous reactions, thermochemistry, and properties of gases. Associated laboratory supports lecture content and incorporates elements of atomic emission spectroscopy and stoichiometric calculations.

2) CHEM 1120: General Chemistry II – Lec. 3, Lab 3, Credit 4

From:
Basic course in General Chemistry for curricula requiring more than one year of Chemistry. Laboratory includes qualitative analysis procedures.

To:
General chemistry course for students pursuing a degree in a STEM-related field. Topics include properties of liquids and solids, solutions, kinetics, thermodynamics, equilibrium, and electrochemistry. Associated laboratory

supports lecture content and incorporates elements of molecular absorption spectroscopy and equilibrium calculations.

Motion to approve. Lisa Zagumny
Second. Julie Baker
Vote. Motion carried

9. <u>Civil and Environmental Engineering</u>

A. Course Changes.

1) From:
CEE 4940 – Fundamentals of Civil Engineering
Rec. 2. Credit 0.
Prerequisite: CEE 3030, CEE 3413, CEE 3420, CEE 3610, CEE 3710, CEE 4310, CEE 4320, CEE 4800, and CEE 4920 (CEE 3030, CEE 3420, CEE 3710, CEE 4310, CEE 4320, CEE 4800 and CEE 4920 may be taken concurrently). Review fundamentals in preparation for fundamentals-of-engineering (FE) test.

To:
CEE 4940 – Fundamentals of Civil Engineering
Rec. 2. Credit 0.
Prerequisite: CEE 3030, CEE 3413, CEE 3420, CEE 3610, CEE 3710, CEE 4310~~,~~ or CEE 4320, CEE 4800, and CEE 4920 (CEE 3030, CEE 3420, CEE 3710, CEE 4310, CEE 4320, CEE 4800 and CEE 4920 may be taken concurrently). Review fundamentals in preparation for fundamentals-of-engineering (FE) test.

Course Deletions.

2) CEE 3100 – Computers in Civil Engineering
Lec. 2. Lab 2. Credit. 3.

3) CEE 4160 – Experimental Stress Analysis
Lec. 2. Lab 2. Credit. 3.

Course Additions.

4) CEE 3340 – Introduction to Structures
Lec. 3. Credit: 3.
Prerequisite: MATH 1710 or MATH 1730 or MATH 1910
Introduction to statics, mechanics of materials, and structural analysis; properties of commonly used structural materials; minimum design loads from ASCE 7. Not for Civil Engineering majors.

5) CEE 4340 – Residential and Light Commercial Design
Lec. 3. Credit: 3.
Prerequisite: CEE 3320 or CEE 3340

Material properties of timber elements; design of timber beams, columns, and connection; light gauge steel properties and design; residential and commercial design considerations.

6) CEE 4490 – Experiential Learning in Water Resources and Environmental Engineering
Credit: 3.
Prerequisite: CHEM 1120, CEE 3413, CEE 3420, and consent of instructor
Real-world experience in the field of water resources and environmental engineering; apply theory and design knowledge gained in civil and environmental engineering courses to practice.

Motion to approve. Lisa Zagumny
Second. Julie Baker
Vote. Motion carried

10. <u>Chemical Engineering</u>

A. Addition of New Concentration.

All proposals in this memo are to be effective Fall 2022. Support for (1) additional engineering adjunct per year and online course development support are requested for three years.

Additionally, funds requested separately in ECE for an undergraduate batteries' laboratory will benefit this concentration.

The Chemical Engineering Department is proposing a new concentration in "Energy and the Environment" to provide students with the opportunity to prepare for workforce needs associated with production, storage and use of energy in a sustainable economy. As such, it is proposed that a Chemical Engineering BS with a concentration in Energy and the Environment consist of the following:

Students must complete eighteen (18) semester hours of coursework:

Required (15) Semester hours:

ESS 1100 Introduction to Environment Studies
CHE 3745 Innovation in Energy
CHE 4345 Fuel Cells
CHE 4550 Green Engineering
CHE 4552 Energy and the Environment Special Topics
Required (3) hours from one of the following courses:
CHE 4552 Energy and the Environment Special Topics
CHEM 4710/4720 Environmental Chemistry
CHEM 4310 Nuclear Chemistry and
Radiochemistry ME 4260 Energy
Conservation

Any College of Engineering course at the 3000 or 4000 level by advisor or chair approval

Friendly Amendment: In CHE 4345 Fuel Cells, the course number "4345" is a typo and should be "4335" instead.

Motion to approve. Lisa Zagumny
Second. Julie Baker
Vote. Motion carried

11. **Computer Science**

A. Course/Catalog Changes.

1) From:
CSC 3220 – Fundamentals of Data Science
Current Catalog Data:
Lec. 3. Credit 3.
Prerequisite: MATH 2010, MATH 3070 or MATH 3470 or MATH 4470 (5470), CSC 2220, CSC 3300, and C or better in CSC 1310. CSC 3300 and MATH 2010 may be taken concurrently. Introduction to the tools and techniques for developing data science applications and to the basics of Data Science including programming for data management, data manipulation, data analytics, and data visualization. Students will be introduced to various machine learning algorithms, and learn to formulate context-relevant questions and hypothesis to drive scientific research and understand statistical inference. Students will be introduced to Python and R, and will be expected to create tools using these programming languages. The foundation is laid for big data applications ranging from fraud detection to healthcare informatics.

To:
CSC 3220 – Fundamentals of Data Science
Current Catalog Data:
Lec. 3. Credit 3.
Prerequisite: MATH 2010, MATH 3070 or MATH 3470 or MATH 4470 (5470), CSC 2220, CSC 3300, and C or better in CSC 1310. CSC 3300 and MATH 2010 may be taken concurrently. Introduction to the tools and techniques for developing data science applications and to the basics of Data Science including programming for data management, data manipulation, data analytics, and data visualization. Students will be introduced to various machine learning algorithms, and learn to formulate context-relevant questions and hypothesis to drive scientific research and understand statistical inference. ~~Students will be introduced to Python and R, and will be expected to create tools using these programming languages. The foundation is laid for big data applications ranging from fraud detection to healthcare informatics.~~

B. Prerequisite Changes.

1) CSC 1310 - Intro/Prob Solving-Comp Prog
From:

Chemical Engineering

TENNESSEE TECH

Memo

To:	Dr. Sharon Huo, Associate Provost Academic Affairs
Via:	University Curriculum Committee
Via:	Dr. Robby Sanders, Chair
From:	Becky Asher, Administrative Assistant
Date:	October 18, 2022
Re:	Correction needed for typing error on memo for CHE-ENEV

When our department sent through our request to propose a new concentration in Chemical Engineering, we missed a typo in the memo. The memo listed our Fuel Cells course as CHE 4345, when in fact the course number is CHE 4335. The correct number is reflected on the concentration comparison spreadsheet.

Our course has not changed; it is only a mistyped number in the memo. We are requesting through this memo that the information in Banner be changed to correct that typo from CHE 4345 to the correct number of CHE 4335.

Chemical Engineering

TENNESSEE TECH

MEMORANDUM

TO: Undergraduate Curriculum Committee

VIA: College of Engineering Curriculum Committee

FROM: Holly A. Stretz, Interim Chair Holly Stretz

DATE: January 20, 2022

SUBJECT: Addition of Chemical Engineering Concentration in Energy and the Environment

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All proposals in this memo are to be effective Fall 2022. Support for (1) additional engineering adjunct per year and online course development support are requested for three years. Additionally, funds requested separately in ECE for an undergraduate batteries' laboratory will benefit this concentration.

The Chemical Engineering Department is proposing a new concentration in "Energy and the Environment" to provide students with the opportunity to prepare for workforce needs associated with production, storage and use of energy in a sustainable economy. As such, it is proposed that a Chemical Engineering BS with a concentration in Energy and the Environment consist of the following:

Students must complete eighteen (18) semester hours of coursework:

Required (15) Semester hours
ESS 1100 Introduction to Environment Studies
CHE 3745 Innovation in Energy
CHE ~~4345~~ Fuel Cells 4335
CHE 4550 Green Engineering
CHE 4552 Energy and the Environment Special Topics

Required (3) hours from one of the following courses:
CHE 4552 Energy and the Environment Special Topics
CHEM 4710/4720 Environmental Chemistry
CHEM 4310 Nuclear Chemistry and
Radiochemistry ME 4260 Energy Conservation
Any College of Engineering course at the 3000 or 4000 level by advisor or chair approval

BS in Chemical Engineering **Name of the Concentration: BioMolecular**			**BS in Chemical Engineering** **Name of the Concentration: Energy and the Environment**		
Rubric	***Title***	***SCH***	***Rubric***	***Title***	***SCH***
General Education		***35***	***General Education***		***35***
Humanities/Fine Arts Gen Ed		6	Humanities/Fine Arts Gen Ed		6
Social/Behviorial Science Gen Ed		6	Social/Behviorial Science Gen Ed		6
ENGL 1010		3	ENGL 1010		3
ENGL 1020		3	ENGL 1020		3
ENGL 2130, 2235, or 2330		3	ENGL 2130, 2235, or 2330		3
COMM 2025 or PC 2500		3	COMM 2025 or PC 2500		3
MATH 1910		4	MATH 1910		4
CHEM 1110		4	CHEM 1110		4
PHYS 2109		3	PHYS 2109		3
Major Core (Required)		***76***	***Major Core (Required)***		***76***
CHE 1010		1	CHE 1010		1
CHE 1020		1	CHE 1020		1
CHE 2015		3	CHE 2015		3
CHE 2020		3	CHE 2020		3
CHE 3010		3	CHE 3010		3
CHE 3050		3	CHE 3050		3
CHE 3051		1	CHE 3051		1
CHE 3510		3	CHE 3510		3
CHE 3511		1	CHE 3511		1
CHE 3550		3	CHE 3550		3
CHE 3551		1	CHE 3551		1
CHE 3735		2	CHE 3735		2
CHE 4050		3	CHE 4050		3
CHE 4051		1	CHE 4051		1
CHE 4060		3	CHE 4060		3
CHE 4061		1	CHE 4061		1
CHE 4250		2	CHE 4250		2
CHE 4410		3	CHE 4410		3
CHE 4420		3	CHE 4420		3
CHE 4540		3	CHE 4540		3
CHEM 1120		4	CHEM 1120		4
CHEM 3010		4	CHEM 3010		4
CHEM 3020		4	CHEM 3020		4
CHEM 3510		4	CHEM 3510		4
ENGR 1120		2	ENGR 1120		2
MATH 1920		4	MATH 1920		4
MATH 2110		4	MATH 2110		4

MATH 2120	3	MATH 2120	3
PHYs 2119	3	PHYS 2119	3
Concentration	***18***	***Concentration***	***18***
BIOL 1113	4	CHE 3745	3
BIOL 3200 or 3230	4	CHE 4335	3
BIOL 3140	4	CHE 4550	3
CHEM 4610	3	CHE 4552	3
CHE 4661	3	ESS 1110	3
		CHE ENEV elective	3
Electives	***0***	***Electives***	***0***
Total	**129**	**Total**	**129**

Prerequisite: C or better in CSC 1300, or C or better in CSC 2100 and CSC 2101; and MATH 1910.

To:
Prerequisite: C or better in CSC 1300 and MATH 1910.

2) CSC 2310 - Object-Oriented Prgrming/Dsgn
From:
Prerequisites: C or better in CSC 1310; or C or better in CSC 2110 and CSC 2111.

To:
Prerequisites: C or better in CSC 1310.

3) CSC 2400 - Design of Algorithms
From:
Prerequisite: MATH 1920; and C or better in CSC 1310 or both CSC 2110 and CSC2111.

To:
Prerequisites: MATH 1920; and C or better in CSC 1310.

4) CSC 3020 - Numerical Methods
From:
Prerequisites: MATH 1920 and C or better in CSC 1310 or CSC 2100 or ENGR 1120.

To:
Prerequisites: MATH 1920 and C or better in CSC 1310.

5) CSC 3040 - Profsnlsm, Comm, Rsrch in Comp
From:
Prerequisite: Junior standing, COMM 2025 or PC 2500, and C or better in CSC 1310 or both CSC 2110 and CSC 2111.

To:
Junior standing, COMM 2025 or PC 2500, and C or better in CSC 1310

6) CSC 3100 - Web Programming
From:
Prerequisites: C or better in CSC 1310 or both CSC 2110 and CSC 2111.
Development of web applications with client and server-side technologies.

To:
Prerequisites: C or better in CSC 1310.

7) CSC 3300 - Database Mgmt Systems
From:
Prerequisite: C or better in CSC 1310 or both CSC 2110, and CSC 2111; and either CSC 2700 or ECE 2110..

To:
Prerequisites: C or better in CSC 1310; and either CSC 2700 or ECE 2110.

8) CSC 3340 - Deterministic Computer Models
From:
Prerequisites: C or better in CSC 1310 or both CSC 2110 and 2111; and MATH 2010.

To:
Prerequisites: C or better in CSC 1310; and MATH 2010.

9) CSC 3410 - Comp Org/Assemb Lang Prog
From:
Prerequisites: C or better in CSC 1310 or both CSC 2110 and 2111.

To:
Prerequisites: C or better in CSC 1310.

10) CSC 3710 - Foundations/Computer Science
From:
C or better in CSC 1610 or CSC 2700; and C or better in CSC 1310 or both CSC 2110 and CSC 2111.

To:
Prerequisites: C or better in CSC 2700; and C or better in CSC 1310.

11) CSC 4010 - Programming Languages
From:
Prerequisites: C or better in CSC 2710 and CSC 3410.

To:
Prerequisites: C or better in CSC 3710 and CSC 3410.

12) CSC 4020 - Compiler Construction
From:
Prerequisites: C or better in CSC 2710 and CSC 3410.

To:
Prerequisites: C or better in CSC 3710 and CSC 3410.

13) CSC 4100 - Operating Systems
From:
Prerequisites: C or better in CSC 1310 or both CSC 2110 and 2111; and CSC 3410 or ECE 3130.

To:
Prerequisites: C or better in CSC 1310; and CSC 3410 or ECE 3130.

14) CSC 4450 - Intro Auto Theory & Comp

From:
Prerequisite: CSC 2710. CSC 2400 recommended.

To:
CSC 3710. CSC 2400 recommended.

15) CSC 4570 - IT Security

From:
Prerequisite: C or better in CSC 2500, and in either CSC 2560 or CSC 4200.

To:
Prerequisite: C or better in CSC 2500, and in either CSC 2570 or CSC 4200

16) CSC 4610 - Software Engineering I

From:
Prerequisites: CSC 2120 or CSC 2310, CSC 2400, CSC 3030 or 3040, and CSC 3300, and senior standing.

To:
Prerequisites: CSC 2310, CSC 2400, 3040, and CSC 3300, and senior standing.

17) CSC 4710 - Dsgn/Dev-Human/Web Interface

From:
Prerequisites: C or better in CSC 1310 or both CSC 2110 and CSC 2111; and C or better in CSC 3030 or CSC 3040.

To:
C or better in CSC 1310; and C or better in CSC 3040

Motion to approve. Lisa Zagumny
Second. Julie Baker
Vote. Motion carried

12. <u>Electrical & Computer Engineering</u>

A. Course Additions.

1) ECE 1000 - Explorations in Electrical and Computer Engineering
Lec. 2. Lab. 3. Credit 3.
Prerequisite: C or better in MATH 1910 (MATH 1910 may be taken concurrently).
Introduction to the profession, college, department, and program. Survey of ECE technical knowledge and tools crucial in early ECE courses with a focus on critical thinking. Introduction to engineering design, teamwork, and technical communication.

2) ECE 2050 - Circuits and Electronics I
Lec. 3. Lab. 3. Credit 4.
Prerequisite: C or better in MATH 1920.
Electric circuit quantities and components, circuit theorems, dc and ac circuit

analysis, first-order transient response, operational amplifiers, circuit simulation.

3) ECE 2140 - Introduction to Digital Systems
Lec. 3. Lab. 3. Credit 4.
Prerequisite: C or better in MATH 1910 (MATH 1910 may be taken concurrently).
Analysis and design of digital systems. Number systems; Boolean algebra; combinational and sequential logic circuits; state machine design; register-transfer level design; memory organization; and introduction to digital hardware design and field-programmable gate arrays.

4) ECE 3050 - Circuits and Electronics II
Lec. 3. Lab. 3. Credit 4.
Prerequisite: C or better in ECE 2050 and C or better in MATH 2120.
Second-order transient response, resonance, semiconductor devices, diode and transistor circuits, amplifier and switching applications.

5) ECE 3140 - Digital System Design
Lec. 3. Credit 3.
Prerequisite: C or better in ECE 2140.
Hierarchical, modular design of complex digital systems; synchronous and asynchronous sequential circuit analysis and design, testability, and circuit simulation for design verification and timing analysis. EDA tools, hardware-description languages, logic synthesis, and field programmable gate arrays.

6) ECE 3330 - Signals and Systems
Lec. 4. Credit 4.
Prerequisite: C or better in ECE 2050 and C or better in MATH 2120.
Time-domain and frequency-domain analysis of signals and systems, Fourier series, Fourier transform, Laplace transform and Z transform and their applications, Analog filters. Signal sampling and reconstruction, Design and implementation of analog and digital filters.

7) ECE 4010 - Analog Electronic Circuits
Lec. 3. Credit 3.
Prerequisite: C or better in ECE 3050 and C or better in ECE 3330.
Frequency response, multi-stage amplifiers, feedback, power output stages, circuit design.

8) ECE 4050 - Circuits and Electronics III
Lec. 3. Credit 3.
Prerequisite: C or better in ECE 3050, C or better in ECE 3130, C or better in ECE 3330, C or better in ECE 3510, and C or better in MATH 3470.
System design, modeling, mixed-signal circuits, component variations, reliability.

Course Changes.

9) **From**:
ECE 3130 - Microcomputer Systems
Lec. 3. Lab. 3. Credit 4.
Prerequisite: C or better in CSC 1300, C or better in ECE 2011, and C or better in ECE 2110.
Microcomputer system architecture. Software/hardware analysis. Programming microcomputer system using Assembly and C languages. Design hardware subsystem and integration with microcontroller for engineering application.

To:
ECE 3130 - Microcomputer Systems
Lec. 3. Lab. 3. Credit 4.
Prerequisite: C or better in CSC 1300 and C or better in ECE 2140.
Microcomputer system architecture. Software/hardware analysis. Programming microcomputer system using Assembly and C languages. Design hardware subsystem and integration with microcontroller for engineering application.

10) **From**:
ECE 3210 - Control System Analysis
Lec. 3. Credit 3.
Prerequisite: PHYS 2110 and C or better in either ECE 3010 or ME 2330.
Modern and classical methods of control system analysis of continuous-time systems. Introduction to design tools.

To:
ECE 3210 - Control System Analysis
Lec. 3. Credit 3.
Prerequisite: PHYS 2110 and C or better in either ECE 3330 or ME 3050.
Modern and classical methods of control system analysis of continuous-time systems. Introduction to control systems design tools.

11) **From**:
ECE 3260 - Control System Lab
Lab. 3. Credit 1.
Prerequisite: C or better in ECE 3060 or ME 3023 and C or better in ECE 3210 (ECE 3210 may be taken concurrently).
Simulation of dynamic systems. Demonstration of control system analysis and design techniques using hardware experiments.

To:
ECE 3260 - Control System Lab
Lab. 3. Credit 1.
Prerequisite: C or better in ECE 3210 (ECE 3210 may be taken concurrently).
Simulation of dynamic systems. Demonstration of control system analysis and design techniques using hardware experiments.

12) **From**:
ECE 3270 - Programmable Logic Controller Lab
Lab. 3. Credit 1.
Prerequisite: C or better ECE 3060, or C or better ME 3023, or C or better in CHE 2020, or C or better CEE 3030, or C or better MET 3200.
Introduction to Ladder Logic Programming, Relays, PLC in Automation & Control, Safety, Hardware Troubleshooting, Hands-on laboratory experiments and projects.

To:
ECE 3270 - Programmable Logic Controller Lab
Lab. 3. Credit 1.
Prerequisite: C or better in ECE 2050, or C or better in ME 3023, or C or better in in CHE 2020, or C or better in CEE 3030, or C or better in MET 3200.
Introduction to Ladder Logic Programming, Relays, PLC in Automation & Control, Safety, Hardware Troubleshooting, Hands-on laboratory experiments and projects.

13) **From**:
ECE 3560 - EM Simulation Lab
Lab. 3. Credit 1.
Prerequisite: C or better in ECE 3060 and C or better in ECE 3510.
Simulation and design of phenomena and devices with EM fields and waves.

To:
ECE 3560 - EM Simulation Lab
Lab. 3. Credit 1.
Prerequisite: C or better in ECE 3510.
Simulation and design of phenomena and devices with EM fields and waves.

14) **From**:
ECE 3610 - Introduction to Power Systems
Lec. 3. Credit 3.
Prerequisite: PHYS 2120 and C or better in ECE 2020.
Overview of electric power systems, magnetic circuits and transformers, electromechanical energy conversion, rotating machines, power system operation and control, and current issues in power systems.

To:
ECE 3610 - Introduction to Power Systems
Lec. 3. Credit 3.
Prerequisite: PHYS 2120 and C or better in ECE 2050.
Overview of electric power systems, magnetic circuits and transformers, electromechanical energy conversion, rotating machines, power system operation and control, and current issues in power systems.

15) **From**:
ECE 3660 - Electric Power Lab
Lab. 3. Credit 1.
Prerequisite: C or better in ECE 3060 and C or better in ECE 3610.
Operation of various power system components, design tests of transformers, speed control characteristics of various types of motors and generators, and computer simulation of power system operation.

To:
ECE 3660 - Electric Power Lab
Lab. 3. Credit 1.
Prerequisite: C or better in ECE 3610.
Operation of various power system components, design tests of transformers, speed control characteristics of various types of motors and generators, and computer simulation of power system operation.

16) **From**:
ECE 3710 - Introduction to Telecommunications
Lec. 3. Credit 3.
Prerequisite: C or better in ECE 3010 and C or better in MATH 3470 (MATH 3470 may be taken concurrently).
Introduction to analog and digital communication systems: modulation and demodulation, signal spectra, coding for data compression and error correction.

To:
ECE 3710 - Introduction to Telecommunications
Lec. 3. Credit 3.
Prerequisite: C or better in ECE 3330 and C or better in MATH 3470 (MATH 3470 may be taken concurrently).
Introduction to analog and digital communication systems: modulation and demodulation, signal spectra, coding for data compression and error correction.

17) **From**:
ECE 3760 - Telecommunications Lab
Lab. 3. Credit 1.
Prerequisite: C or better in ECE 3060 and C or better in ECE 3710.
Telecommunication system measurements.

To:
ECE 3760 - Telecommunications Lab
Lab. 3. Credit 1.
Prerequisite: C or better in ECE 3710.
Telecommunication system measurements.

18) **From**:
ECE 3920 - Professional Issues in Electrical and Computer Engineering
Lec. 1. Rec. 1. Credit 1.

Prerequisite: Junior Standing, C or better in ECE 2020, and either C or better in COMM 2025 or C or better in PC 2500. (COMM 2025 or PC 2500 may be taken concurrently.)
Professional topics in Engineering, verbal technical communications.

To:
ECE 3920 - Professional Issues in Electrical and Computer Engineering
Lec. 1. Rec. 1. Credit 1.
Prerequisite: C or better in ECE 1000, Junior Standing, and C or better in either COMM 2025 or PC 2500.
Professional topics in Engineering, verbal technical communications.

19) From:
ECE 4020 (5020) - Digital Signal Processing
Lec. 3. Credit 3.
Prerequisite: C or better in ECE 3020 and C or better in ECE 3130.
Theory and practice of discrete-time signals and systems, A/D and D/A conversion, filter design, DSP Architecture and implementation, programming, DSP applications.

To:
ECE 4020 (5020) - Digital Signal Processing
Lec. 3. Credit 3.
Prerequisite: C or better in CSC 1310, C or better in ECE 3130, and C or better in ECE 3330.
Theory and practice of discrete-time signals and systems, A/D and D/A conversion, filter design, DSP Architecture and implementation, programming, DSP applications.

20) From:
ECE 4120 (5120) - Fundamentals of Computer Design
Lec. 3. Credit 3.
Prerequisite: C or better in ECE 3130 and C or better in ECE 4110 (5110).
Continuation of digital system design concepts and applications with emphasis on computer hardware design: CPU sequencers, arithmetic/logic units, fixed and floating point arithmetic implementations, and computer peripheral interfacing, utilizing programmable logic.

To:
ECE 4120 (5120) - Fundamentals of Computer Design
Lec. 3. Credit 3.
Prerequisite: C or better in ECE 3130 and C or better in ECE 3140.
Continuation of digital system design concepts and applications with emphasis on computer hardware design: CPU sequencers, arithmetic/logic units, fixed and floating point arithmetic implementations, and computer peripheral interfacing, utilizing programmable logic.

21) **From**:
ECE 4130 (5130) - Introduction to Digital VLSI
Lec. 3. Credit 3.
Prerequisite: C or better in ECE 2110 and C or better in ECE 3300.
Analysis, design and layout of complex digital integrated circuits in MOS technology. The course emphasizes design through projects and requires extensive use of simulation and layout VLSI CAD tools.

To:
ECE 4130 (5130) - Introduction to Digital VLSI
Lec. 3. Credit 3.
Prerequisite: C or better in ECE 2140 and C or better in ECE 3050.
Analysis, design and layout of complex digital integrated circuits in MOS technology. The course emphasizes design through projects and requires extensive use of simulation and layout VLSI CAD tools.

22) **From**:
ECE 4140 (5140) - Embedded System Design
Lec. 2. Lab. 3. Credit 3.
Prerequisite: C or better in ECE 3130.
Basic hardware and software concepts in the analysis and design of embedded systems, peripheral interfaces and performance analysis with hands-on design project.

To:
ECE 4140 (5140) - Embedded System Design
Lec. 2. Lab. 3. Credit 3.
Prerequisite: C or better in CSC 1310 and C or better in ECE 3130.
Basic hardware and software concepts in the analysis and design of embedded systems, peripheral interfaces and performance analysis with hands-on design project.

23) **From**:
ECE 4370 (5370) - Mechatronics and Intelligent Machines Engineering
Cross-listing: ME 4370 (5370)
Lec. 2. Lab. 2. Credit 3.
Prerequisite: C or better in ECE 3130 and C or better in ECE 3160.
Mechatronics; number systems; microcontroller technology and architecture of 8-bit microcontrollers (e.g. Motorola MC68HC110); assembly language programming; A/D and D/A conversion; parallel I/O; programmable timer operation; interfacing sensors and actuators; applications; and team project on design and implementation of a mechatronic system.

To:
ECE 4370 (5370) - Mechatronics and Intelligent Machines Engineering
Cross-listing: ME 4370 (5370)
Lec. 2. Lab. 2. Credit 3.
Prerequisite: C or better in ECE 3130.

Mechatronics; number systems; microcontroller technology and architecture of 8-bit microcontrollers (e.g. Motorola MC68HC110); assembly language programming; A/D and D/A conversion; parallel I/O; programmable timer operation; interfacing sensors and actuators; applications; and team project on design and implementation of a mechatronic system.

24) **From**:
ECE 4630 (5630) - Power Electronics
Lec. 3. Credit 3.
Prerequisite: C or better in ECE 3300 and C or better in ECE 3610.
Uncontrolled and controlled rectifiers, voltage controllers, chopper, dc motor control, pulse-width modulation inverters, induction motor control, and power supplies.

To:
ECE 4630 (5630) - Power Electronics
Lec. 3. Credit 3.
Prerequisite: C or better in ECE 3050 and C or better in ECE 3610.
Uncontrolled and controlled rectifiers, voltage controllers, chopper, dc motor control, pulse-width modulation inverters, induction motor control, and power supplies.

25) **From**:
ECE 4720 (5720) - Telecommunication Systems Design
Lec. 3. Credit 3.
Prerequisite: C or better in ECE 3020, C or better in ECE 3710, and C or better in MATH 3470.
Link budget, synchronization, frequency synthesis, receiver architecture, noise and distortion, error correction codes, spread-spectrum systems.

To:
ECE 4720 (5720) - Telecommunication Systems Design
Lec. 3. Credit 3.
Prerequisite: C or better in ECE 3710 and C or better in MATH 3470.
Link budget, synchronization, frequency synthesis, receiver architecture, noise and distortion, error correction codes, spread-spectrum systems.

26) **From**:
ECE 4961 - Capstone Design I
Lec. 2. Lab. 4. Credit 3.
Prerequisite: C or better in ECE 3010, C or better in ECE 3020, C or better in ECE 3060, C or better in ECE 3130, C or better in ECE 3300, C or better in ECE 3920, and either C or better in COMM 2025 or C or better in PC 2500. (ECE 3020 and/or ECE 3920 may be taken concurrently).
The first in a sequence of two capstone design project courses. Student teams will complete an industry client-driven system design project. Teamwork, leadership, project planning and management, specification, budgeting, design

review, subsystem development, testing, weekly reporting, documentation, and oral presentation.

To:
ECE 4961 - Capstone Design I
Lec. 2. Lab. 4. Credit 3.
Prerequisite: C or better in CSC 1310, C or better in ECE 3050, C or better in ECE 3130, C or better in ECE 3330, C or better in ECE 3920, C or better in MATH 2010, C or better in MATH 3470, Senior Standing, and C or better in either MATH 2110 or MATH 2610.
The first in a sequence of two capstone design project courses. Student teams will complete a comprehensive system design project. Teamwork, leadership, project planning and management, specification, budgeting, design review, subsystem development, testing, weekly reporting, documentation, and oral presentation.

27) **From**:
ECE 4971 - Capstone Design II
Lec. 2. Lab. 4. Credit 3.
Prerequisite: ECE 4961 and a C or better in ECE 3920.
The second in a sequence of two senior capstone design project courses. Student teams will complete an industry client-driven system design project. Teamwork, leadership, project planning and management, specification, budgeting, design review, implementation, testing, weekly reporting, documentation, and oral presentation.

To:
ECE 4971 - Capstone Design II
Lec. 2. Lab. 4. Credit 3.
Prerequisite: ECE 4961.
The second in a sequence of two senior capstone design project courses. Student teams will complete a comprehensive system design project. Teamwork, leadership, project planning and management, specification, budgeting, design review, implementation, testing, weekly reporting, documentation, and oral presentation.

Course Deletions.

28) ECE 1020 - Connections to Electrical and Computer Engineering
Rec. 2. Credit 1.

29) ECE 3310 - Electronics II
Lec. 3. Credit 3.

Curriculum Changes.

Revised Programs of Study:

New courses are proposed (listed above) (including the new introductory course, the new circuits and electronics sequence, a new signals and systems course, and new courses that integrate a (previously stand-alone) laboratory), prerequisites are modified to reflect the new core, and new degree requirements are set out for both the BSEE and BSCmpE degrees, as well as for the two concentrations available with the BSEE degree (BSEE-Mechatronics and BSEE-Vehicle Engineering). A draft version of this new curriculum was approved by the ECE faculty on November 30, 2021, and the version reflected in this memo was approved on January 20, 2022. These changes have been discussed with impacted departments (especially CSC and ME), and transition planning for the transition to the new curriculum is ongoing. The only degree programs outside the department which must be adapted to the new curriculum are the BSE degree and the ME-Mechatronics concentration; several ME courses will also need to have their prerequisites updated. Ongoing transition planning includes planning paths to graduation for continuing students, defining appropriate sets of substitutions between the old and new courses, and continuing work with academic advisors to validate the new curriculum and ensure that students are appropriately advised. *Note that course prerequisites in this memo refer only to new courses; this is to avoid repeated catalog changes. We will work with the registrar to ensure that alternative prerequisite paths including old courses continue to be defined in Banner during the transition.*

Computer Engineering, B.S.CMP.E.

(Leading to the Bachelor of Science in Computer Engineering Degree)

Accredited by the Computing Accreditation Commission of ABET, http://www.ABET.org

Curriculum:

Freshman Year

First Semester

ENGL 1010	English Composition I	3
MATH 1910	Calculus I	4
CHEM 1110	General Chemistry I	4
ECE 1000	Explorations in Electrical and Computer Engineering	3
	Hum/Fine Arts Elective[1]	3
	Total	**17**

Second Semester

ENGL 1020	English Composition II	3
MATH 1920	Calculus II	4
CSC 1300	Intro. to Problem Solving & Computer Programming	4

ECE 2140	Intro. to Digital Systems	4
	Total	**15**

Sophomore Year:

First Semester

	Literature[1]	3
MATH 2120	Differential Equations	3
MATH 2010	Intro. to Linear Algebra	3
CSC 1310	Data Structures & Algorithms	4
ECE 2050	Circuits and Electronics I	4
	Total	**17**

Second Semester

	Communication[1]	3
MATH 2610	Discrete Structures	3
CSC 2400	Design of Algorithms	3
ECE 3050	Circuits and Electronics II	4
PHYS 2110	Calculus-based Physics I	4
	Total	**17**

Junior Year:

First Semester

ECE 3130	Microcomputer Systems	4
PHYS 2120	Calculus-based Physics II	4
ECE 3330	Signals and Systems	4
ECE 3140	Digital System Design	3
	Total	**15**

Second Semester

ECE 3920	Professional Issues in ECE	1
MATH 3470	Introductory Probability and Statistics	3
CSC 4200	Computer Networks	3
	CmpE Breadth Elective[2]	6
	Hum/Fine Arts Elective[1]	3
	Total	**16**

Senior Year:

First Semester

ECE 4961	Capstone Design I	3
ECE 4140	Embedded System Design	3
	CmpE Depth Elective[2]	6
	Soc/Beh Science Elective[1]	3
	Total	**15**

Second Semester

ECE 4971	Capstone Design II	3
ECE 4120	Fundamentals of Computer Design	3
CSC 4100	Operating Systems	3
	Career Elective[2]	3
	Soc/Beh Science Elective[1]	3
	Elective	1
	Total	**16**

[1] Select from University approved list.
[2] Select from ECE Department approved list.

Electrical Engineering, B.S.E.E.

(Leading to the Bachelor of Science in Electrical Engineering Degree)

Accredited by the Computing Accreditation Commission of ABET, http://www.ABET.org

Curriculum:

Freshman Year

First Semester

ENGL 1010	English Composition I	3
MATH 1910	Calculus I	4
CHEM 1110	General Chemistry I	4
ECE 1000	Explorations in Electrical and Computer Engineering	3
	Hum/Fine Arts Elective[1]	3
	Total	**17**

Second Semester

ENGL 1020	English Composition II	3
MATH 1920	Calculus II	4
CSC 1300	Intro. to Problem Solving & Computer Programming	4
ECE 2140	Intro. to Digital Systems	4
	Total	**15**

Sophomore Year:

First Semester

	Literature[1]	3
MATH 2120	Differential Equations	3
MATH 2010	Intro. to Linear Algebra	3
CSC 1310	Data Structures & Algorithms	4
ECE 2050	Circuits and Electronics I	4
	Total	**17**

Second Semester

	Communication[1]	3

MATH 2110	Calculus III	4
PHYS 2110	Calculus-based Physics I	4
ECE 3050	Circuits and Electronics II	4
	Total	**15**

Junior Year:

First Semester

MATH 3470	Introductory Probability and Statistics	3
ECE 3130	Microcomputer Systems	4
PHYS 2120	Calculus-based Physics II	4
ECE 3330	Signals and Systems	4
	Hum/Fine Arts Elective[1]	3
	Total	**18**

Second Semester

ECE 3920	Professional Issues in ECE	1
ECE 3510	Electromagnetic Fields I	3
	EE Breadth Elective[2]	9
	Career Elective[2]	3
	Total	**16**

Senior Year:

First Semester

ECE 4961	Capstone Design I	3
ECE 4050	Circuits and Electronics III	3
	EE Breadth Elective[2]	3
	EE Depth Elective[2]	3
	Soc/Beh Science Elective[1]	3
	Total	**15**

Second Semester

ECE 4971	Capstone Design II	3
	EE Depth Elective[2]	3
	Career Elective[2]	3
	Soc/Beh Science Elective[1]	3
	Elective ***	3
	Total	**15**

[1] Select from University approved list.
[2] Select from ECE Department approved list.

Electrical Engineering, Mechatronics Concentration, B.S.E.E.

(Leading to the Bachelor of Science in Electrical Engineering Degree)

Accredited by the Computing Accreditation Commission of ABET, http://www.ABET.org

Curriculum:

Freshman Year:

First Semester

ENGL 1010	English Composition I	3
MATH 1910	Calculus I	4
CHEM 1110	General Chemistry I	4
ECE 1000	Explorations in Electrical and Computer Engineering	3
	Hum/Fine Arts Elective[1]	3
	Total	**17**

Second Semester

ENGL 1020	English Composition II	3
MATH 1920	Calculus II	4
CSC 1300	Intro. to Problem Solving & Computer Programming	4
ECE 2140	Intro. to Digital Systems	4

ENGR 1110	Engineering Graphics	2
	Total	**17**

Sophomore Year:

First Semester

	Literature[1]	3
MATH 2120	Differential Equations	3
ECE 2050	Circuits and Electronics I	4
PHYS 2110	Calculus-based Physics I	4
CSC 1310	Data Structures & Algorithms	4
	Total	**18**

Second Semester

	Communication[1]	3
MATH 2110	Calculus III	4
ECE 3050	Circuits and Electronics II	4
CEE 2110	Statics	3
MATH 2010	Intro. to Linear Algebra	3
	Total	**17**

Junior Year:

First Semester

MATH 3470	Introductory Probability and Statistics	3
ECE 3130	Microcomputer Systems	4
ME 2330	Dynamics	3
ECE 3330	Signals and Systems	4
PHYS 2120	Calculus-based Physics II	4
	Total	**18**

Second Semester

ECE 3920	Professional Issues in ECE	1
ECE 3510	Electromagnetic Fields I	3
ME 3610	Dynamics of Machinery	3
ECE 3210	Control Systems Analysis	3
ECE 3260	Control Systems Lab	1
ECE 3270	Programmable Logic Controller Lab	1
	Total	**12**

Senior Year:

First Semester

ECE 4961	Capstone Design I	3
ECE 4050	Circuits and Electronics III	3
ME 4140	Intro to Robotics and Intelligent Machines Engineering	3
	Hum/Fine Arts Elective[1]	3
	Soc/Beh Science Elective[1]	3
	Total	**15**

Second Semester

ECE 4971	Capstone Design II	3
	EE Mechatronics Concentration Elective[2]	6
	Soc/Beh Science Elective[1]	3
	Elective	2
	Total	**14**

[1] Select from University approved list.
[2] Select from ECE Department approved list.

Electrical Engineering, Vehicle Engineering Concertration, B.S.E.E.

(Leading to the Bachelor of Science in Electrical Engineering Degree)

Accredited by the Computing Accreditation Commission of ABET, http://www.ABET.org

Curriculum:

Freshman Year:

First Semester

ENGL 1010	English Composition I	3
MATH 1910	Calculus I	4
CHEM 1110	General Chemistry I	4
ECE 1000	Explorations in Electrical and Computer Engineering	3
	Hum/Fine Arts Elective[1]	3
	Total	**17**

Second Semester

ENGL 1020	English Composition II	3
MATH 1920	Calculus II	4
CSC 1300	Intro. to Problem Solving & Computer Programming	4
ECE 2140	Intro. to Digital Systems	4
	Total	**15**

Sophomore Year:

First Semester

	Literature[1]	3
MATH 2120	Differential Equations	3
ECE 2050	Circuits and Electronics I	4
CSC 1310	Data Structures & Algorithms	4
MATH 2010	Intro. to Linear Algebra	3
	Total	**17**

Second Semester

	Communication[1]	3
MATH 2110	Calculus III	4

PHYS 2110	Calculus-based Physics I	4
ECE 3050	Circuits and Electronics II	4
	Total	**15**

Junior Year:

First Semester

MATH 3470	Introductory Probability and Statistics	3
PHYS 2120	Calculus-based Physics II	4
ECE 3330	Signals and Systems	4
ECE 3130	Microcomputer Systems	4
VE 3400	Intro to Automotive Systems	3
	Total	**18**

Second Semester

ECE 3920	Professional Issues in ECE	1
ECE 3510	Electromagnetic Fields I	3
VE 3500	Sensors, Transducers and Instrumentation	3
VE 4050	Autonomous Vehicles	3
ECE 3210	Control Systems Analysis	3
ECE 3610	Intro to Power Systems	3
	Total	**16**

Senior Year:

First Semester

VE 4100	Senior Design Project I	3
ECE 4050	Circuits and Electronics III	3
	EE Vehicle Engineering Concentration Elective[2]	6
	Soc/Beh Science Elective[1]	3
	Total	**15**

Second Semester

VE 4200	Senior Design Project II	3
VE 4500	Reliability and Quality Engineering	3
	Hum/Fine Arts Elective[1]	3
	Soc/Beh Science Elective[1]	3
	Career Elective[2]	3
	Total	**15**

[1] Select from University approved list.
[2] Select from ECE Department approved list.

Motion to approve. Lisa Zagumny
Second. Kumar Yelamarthi
Vote. Motion carried

13. <u>Mechanical Engineering</u>

A. Course Additions.

1) ME 4414: Senior Design I -Aerospace

Lec. 2. Lab. 2. Cr. 3. Prerequisite: Completion of required 3000-level ME courses; ME 4010. Co-requisite: ME 3050, ME 3060, ME 4020 or ME 4720. Principles of engineering design with emphasis on contemporary aerospace industrial design processes and engineering economics with applications in product design. Development phase for capstone team design project in mechanical engineering: preliminary design, supporting analyses and drawings with bill of materials.

2) ME 4424: Senior Design II- Aerospace
Lec. 1. Lab. 4. Cr. 3. Prerequisite: ME 4414; ME 4020 or ME 4720. Co-requisite: ME 4020 or ME 4720. Continuation of ME 4414. Prototyping and testing phase for capstone team design project. Final design reporting (written and oral)

Motion to approve. Lisa Zagumny
Second. Julie Baker
Vote. Motion carried

B. Course Addition.

1) ME 4710: Propulsion

Lec. 3 Cr. 3. Prerequisite: ME 3220 and ME 3720. Co-requisites: NA. This course presents aerospace propulsive devices as systems, with functional requirements and engineering and environmental limitations along with requirements and limitations that constrain design choices. Both air-breathing and rocket engines are covered, at a level which enables rational integration of the propulsive system into an overall vehicle design. Mission analysis, fundamental performance relations, and exemplary design solutions are presented.

Motion to approve. Lisa Zagumny
Second. Julie Baker
Vote. Motion carried

C. Course Addition.

1) VE 4050: Autonomous Vehicles
Lec. 2 Lab. 2 Cr. 3. Prerequisite: ENGR 1120 or CSC 1300; MATH 1920; VE 3400; VE 3500 or ME 3023 or ECE 2050, or consent of instructor. Can be taken concurrently: VE 3500 or ME 3023 or ECE 2050. This course provides students with foundational knowledge on autonomous vehicle systems. Students learn about the software and hardware architectures of an autonomous vehicle. It also covers some of the perception and control techniques along with an introduction to connected vehicles and their recent applications.

D. Addition of New Concentration.

Mechanical engineering is a broad engineering discipline consisting of many sub-disciplines. Aerospace engineering is among one of the well-established ones. There is a need for more mechanical engineering graduates possessing specialized knowledge in aerospace area.

It is anticipated that the new concentration would also serve as a strong marketing tool for the department and College of Engineering to attract new students. Graduates of the proposed concentration in ME would be highly welcome in aerospace industry, expanding the focus and market for the mechanical engineering program.

The Mechanical Department is proposing a new concentration in Aerospace Engineering to provide current and prospective students with the opportunity to expand their knowledge base in coursework specific to Aerospace Engineering, while maintaining a base knowledge of all other Mechanical Engineering sub-disciplines.

This concentration does not require any additional resources due to the utilization of existing coursework.

Summary of the Aerospace Engineering concentration:

- The Committee nominated Dr. Rory Roberts to be the Aerospace concentration coordinator and Dr. Roberts accepted the nomination. The responsibility of the concentration coordinator is to approve Senior Design project for all Aerospace concentration students.
- BSME Aerospace concentration students are required to take at least 4 out of 5 existing AOEs from the Aerospace focus area. Among the 4 courses, at least 2 courses must be selected from these 3 courses:
    (1) ME 4310/5310 Gas Dynamics;
    (2) ME 4510/5510 Aerodynamics;
    (3) ME 4710 Propulsion.

- The other two can be selected from the list below:
    (i) ME 4060/5060 Machine Vibration;
    (ii) ME 4380/5380 Intro- Data Acq & Signal Proc;
    (iii) ME 4620/5620 Turbomachinery;
    (iv) ME 4810/5810 Automatic Control;
    (vii) ME 4930/5930 Noise Control.

- The two Senior Design courses for Aerospace concentration will be ME 4414/4424 Senior Design Aerospace. The instructor of ME 4414/4424 Senior Design Aerospace will work with the Aerospace concentration coordinator on the selection and assignment of senior design projects for Aerospace concentration students.

Motion to approve. Lisa Zagumny
Second. Julie Baker
Vote. Motion carried

E.Concentration Modification.

Mechanical engineering has been offering Vehicle Engineering concentration for two years and has received positive feedback from students, faculty, and employers. The ME undergraduate curriculum committee reviewed the current operation status of the concentration and proposed to make the following modifications as part of continuous improvement:

Summary of the modifications to the Vehicle Engineering concentration:

- VE 4500 Reliability and Quality Engineering will not be a required course; it will become one of the AOEs. (Area of Emphasis)
- The total number of AOEs is changed from 2 to 3.
- VE students are required to take 3 AOEs from the Vehicle Engineering focus area. Among the 3 courses, at least 2 courses must be selected from these 3 courses:

    (1) VE 4050 Autonomous Vehicles;
    (2) ME 4630/5630 Internal Combustion Engines;
    (3) ME 4810/5810 Automatic Control.

- The third elective can be taken from one of the courses listed below:

i. ME 4060/5060 Machine Vibration;
ii. ME 4180/5180 Finite Element Methods;
iii. ME 4380/5380 Intro- Data Acq & Signal Proc;
iv. ME 4930/5930 Noise Control;
v. VE 4500 Reliability and Quality Engineering

Motion to approve. Lisa Zagumny
Second. Julie Baker
Vote. Motion carried

14. <u>Art, Craft & Design</u>

A. Course Additions.

1) ART 3180: History of Prints, Lecture 3. Credit 3.
Pre-requisites: None
Course Description: This course considers the broad scope of printmaking and its place within art history. Taking a global perspective, this course explores printmaking from printed fabrics in India and Käthe Kollwitz' Expressionist etchings in Germany to Katsushika Hokusai's Japanese woodblock prints and Jose Posada's Calaveras woodcuts in Mexico. The variety of time periods, styles, and cultures surveyed in this course will enrich students' understanding and appreciation of printing processes and the role of the printed image in the history of art.

2) ART 3190: Medieval Art History, Lecture 3. Credit 3.
Pre-requisites: None

Course Description: This course explores the cross-cultural influences within religious art of the Middle Ages from the fall of Rome to the rise of Protestantism (ca 500 – 1500 CE). While focusing on Christian art in Europe, we will also investigate the intersections of Judaism, Christianity, and Islam, considering the ways these faiths are expressed in architecture, sculpture, manuscripts, textiles, and paintings in Europe and the Near East

3) ART 1320: Creative Studio, Studio 6. Credit 3.
Pre-requisites: None
Course Description: Creativity is a learnable skill that serves as the foundation for creative practice. Creative Studio will focus on the creative process from ideation and problem solving through self-assessment and iteration. Students will be introduced to creative practice as a skilled discipline and rigorous form of exploration that requires persistent research, analysis, synthesis, and execution. Through a series of engaging hands-on studio projects, students will be encouraged to establish an independently driven creative ideation process.

Course Changes.

4) ART 3530/3531 Independent Studies in Clay
From:

Lab

To:
Studio

5) ART 4211 Design Practicum
From:
6 studio. 3 credit

To:
8 studio. 4 credit

Curriculum/Catalog Changes.

6) Art History Minor
DELETE: ART 4170: Ancient MesoAmerican Art
DELETE: ART 3160: History of Crafts II
CHANGE: ART 3150 FROM History of Crafts II TO History of Crafts
Add ART 3170: History of Design, lecture 3, credits 3.
ADD ART 3180: History of Prints, lecture 3, credits 3
ADD ART 3190: Medieval Art History, lecture 3, credits 3
Prerequisites: none

7) Art Studio Minor
DELETE: ART 3510 Clay on the Wheel
ADD: ART 2540 Intro to Wheel-throwing
ADD: ART 3540 Intermediate Wheel-throwing

8) Art Education Major
DELETE ART 1050 Drawing II as pre-requisite for ART 2410 Painting I
DELETE ART 1350-Foundation Studio II as pre-requisite for ART 2410 Painting I
ADD: students must earn a "C" or better in all art courses in order to gain credit
DELETE ART 4170-Ancient Mesoamerican Art and ART 3160 History of Crafts II from list of Art History elective options fall and spring junior year.
ADD: ART 3170-History of Design, ART 3180-History of Prints and ART 3190-Medieval Art History to art history elective options fall and spring junior year. All are lecture 3, credits 3.
ADD: ART 1320- Creative Studio, studio 6, credit 3, fall freshman year
MOVE: ART 1045 Drawing I FROM fall freshman year TO spring freshman year
MOVE ART 1050 Drawing II FROM spring freshman year TO fall sophomore year
MOVE ART 2510, 2540, 2610, 2710, 2810 (Craft Class outside of studio emphasis) FROM fall sophomore year TO spring sophomore year.
MOVE Art studio elective or guided elective FROM Spring sophomore year TO fall junior year.
DELETE Studio emphasis, 3 hours, from fall junior year.

9) Dual-studio Major

ADD: ART 1320- Creative Studio, studio 6, credit 3
DELETE ART 3510 Clay on the Wheel from the Clay core course options.
ADD ART 3540-Intermediate Wheel-Throwing to the Clay core course options.
CHANGE NOTE 1 in catalog: "A grade of C or better…. Art Education and Design cannot be used as dual studios for this concentration." Delete Design from that phrase.
CHANGE NOTE 2 in catalog: …. Art Education and Design cannot be used as dual studios for this concentration. Delete Design from that phrase.
DELETE ART 4170-Ancient Mesoamerican Art and ART 3160 History of Crafts II
MOVE ART 1250 Intro to Digital Imaging FROM fall sophomore year TO fall freshman year.
MOVE ART 1045 Drawing I FROM fall freshman year TO spring freshman year.
MOVE ART 1350 Foundations Studio II FROM spring freshman year TO fall sophomore year.
MOVE ART 1050 Drawing II, ART 2330 Technical Drawing, ART 2340 CAD FROM spring freshman year to spring sophomore year.
DELETE Studio intro of choice or guided elective in spring of sophomore year.
ADD *OR Guided Elective* to Art History Elective in fall junior year.

10) Clay Major
ADD ART 1320 Creative Studio to fall freshman year, studio 6, credit 3.
MOVE ART 1045 Drawing 1 FROM fall freshman year TO spring freshman year.
MOVE ART 1050 Drawing 2, ART 2330 Tech. Drawing or ART 2340 CAD FROM spring freshman year TO fall sophomore year.
MOVE ART 1250 Intro to Digital Imaging FROM fall sophomore year TO spring sophomore year.
MOVE Studio Intro of Choice FROM spring sophomore year TO fall senior year.
CHANGE Art Studio elective from 4 credits to 1 credit.
MOVE Gen. Ed. Humanities FROM fall senior year TO spring senior year.

11) Design Major
ADD ART 1320 Creative Studio to spring freshman year.
MOVE ART 1045 Drawing 1 FROM spring freshman year TO fall sophomore year.
MOVE ART 1350 Foundations Studio II FROM spring sophomore year TO fall sophomore year.
MOVE ART 1050 Drawing 2, or ART 2340 CAD FROM spring freshman year TO spring sophomore year.
MOVE HIST 2010-Early United States History FROM fall sophomore year TO fall junior year.
DELETE 4 credits ART 3250/3251 Independent Study or ART 4240 Special Problems FROM spring Junior year.
ADD Elective spring Junior year.

CHANGED ART 4211-Design Practicum FROM 3 hours TO 4 hours. Fall senior year.

12) Fibers Major
ADD ART 1320 Creative Studio to fall freshman year.
MOVE ART 1045 Drawing 1 FROM fall freshman year TO spring freshman year.
MOVE ART 1050 Drawing 2, ART 2330 Tech. Drawing or ART 2340 CAD FROM spring freshman year TO fall sophomore year.
MOVE ART 1250 Intro to Digital Imaging FROM fall sophomore year TO spring sophomore year.
MOVE Studio Intro of Choice FROM spring sophomore year TO fall senior year.
CHANGE Art Studio elective FROM 4 credits TO 1 credit (spring senior year)
MOVE Elective 3 credits FROM fall senior year TO spring senior year

13) Glass Major
ADD ART 1320 Creative Studio to fall freshman year.
MOVE ART 1045 Drawing 1 FROM fall freshman year TO spring freshman year.
MOVE ART 1050 Drawing 2, ART 2330 Tech. Drawing, or ART 2340 CAD FROM spring freshman year TO fall sophomore year.
MOVE ART 1250 Intro to Digital Imaging FROM fall sophomore year TO spring sophomore year.
MOVE Studio Intro of Choice FROM spring sophomore year TO spring junior year.
CHANGE Art Studio elective FROM 4 credits TO 1 credit fall senior year.
MOVE elective FROM spring junior year TO fall senior year.

14) Metals Major
ADD ART 1320 Creative Studio to fall freshman year.
MOVE ART 1045 Drawing 1 FROM fall freshman year TO spring freshman year.
DELETE ART 1050 Drawing 2 from second drawing requirement options (ART 2330-Technical Drawing and ART-2340 CAD are the only 2 second drawing options).
MOVE ART 2330 Tech. Drawing or ART 2340 CAD FROM spring freshman year TO fall sophomore year. (deleted ART 1050-Drawing II)
MOVE ART 1250 Intro to Digital Imaging FROM fall sophomore year TO spring sophomore year.
CHANGE ART 3830: Ind. Studies in Metals TO ART 3811: Metalsmithing in spring sophomore year.
CHANGE ART 4840: Special Problems in Metals TO ART 3830: Independent Studies in Metals fall junior year.
MOVE Studio Intro of Choice FROM fall junior year TO spring junior year.
MOVE ART History Elective FROM spring junior year TO fall senior year.
MOVE Elective FROM spring junior year TO fall senior year.
CHANGE Art Studio elective FROM 4 credits TO 1 credit and MOVED it to Spring Junior year

15) Painting Major

ADDED ART 1320 Creative Studio to fall freshman year.
MOVED ART 1045: Drawing 1 FROM fall freshman year TO spring freshman year.
MOVED ART 1050: Drawing 2 FROM spring freshman year TO fall sophomore year.
DELETE ART 3310: Drawing III FROM list of drawing electives in fall junior year.
MOVE ART 1250: Intro to Digital Imaging FROM fall sophomore year TO spring sophomore year.
MOVE Studio Intro of Choice FROM spring sophomore year TO fall junior year.
DELETE ART 3430: Independent Study Painting II FROM spring junior year.

16) Wood Major
ADD ART 1320 Creative Studio course to fall freshman year.
MOVE Art 1045 Drawing I FROM fall freshman year TO spring freshman year.
MOVE Art 2339 Technical Drawing FROM spring freshman year TO fall sophomore year.
MOVE Art 1250: Intro to Digital Imaging FROM fall sophomore year TO spring sophomore year
MOVE Art History elective FROM spring junior year TO fall senior year.
MOVE Studio Intro of Choice FROM spring sophomore year TO spring junior year
CHANGE Art studio elective FROM 4 credits TO 1 credit and MOVED FROM fall senior year TO spring junior year.

Motion to approve. Lisa Zagumny
Second. Julie Baker
Vote. Motion carried

15. <u>Interdisciplinary Studies</u>

A. Course Additions.

1) LIST 4220 Project Management: Processes and Development Strategies Lec. 3. Credit 3. Prerequisite: LIST 3215: Introduction to Project Management Expectations or instructor approval
Course Description: The world of project management is changing. Industry no longer relies on a single project management process to complete all project work, instead they use multiple processes all tailored to their needs. This course is designed to take a deep dive view in the world of project management processes leveraged in industries today. At the completion of the class, students will have a better understanding of the processes to include predictive (Waterfall), adaptive (SCRUM), and hybrid processes.

2) LIST 4280 Project Management for IT Professional Lec. 3. Credit 3. Prerequisite: LIST 3215: Introduction to Project Management Expectations or instructor approval
Course Description: This course provides an overview of strategic project planning and execution in IT delivery and administration with a focus on project management models, tools, planning, analysis, and

assessment. This course explores strategies to provide successful oversight of information technology projects that an organization undertakes. Topics include planning, budgeting, executing, leading, troubleshooting, and maintaining IT projects.

Motion to approve. Steve Frye
Second. Julie Baker
Vote. Motion carried

B. Addition of New Minor.

The School of Interdisciplinary Studies requests the approval of a new minor in Project Management for Professionals.

3 Required hours:

- LIST 3215 Introduction to Project Management Expectations & Methodologies Cr.3.

12 Elective hours (select 4 courses):

- LIST 4220 Project Management: Processes and Development Strategies Cr. 3.
- LIST 4250 Project Management: Schedule and Finance Cr. 3.
- LIST 4260 Project Management: Risk Mitigation, Risk Assessment & Quality Assurance Cr.3.
- LIST 4280 Project Management for Information Technology Cr. 3.
- LIST 4290 Project Management for Healthcare Administration Cr. 3.
- LIST 4113 Internship Cr. 3.
- BMGT 3510 Management and Organizational Behavior Cr. 3.
- LIST 4710 Workplace Conflict and Resolution Cr. 3 or
- BMGT 4410 Conflict Management and Negotiation Cr. 3

Motion to approve. Lisa Zagumny
Second. Julie Baker
Vote. Motion carried

16. <u>Agriculture</u>

A. Course Addition.

1) ANS 3015 Animal Nutrition, Fall. Lec. 3. Credit 3.
Pre-requisites: ANS 1200, 1210, and CHEM 1010, 1020, sophomore standing
Course Description: This course will examine the nutritional roles of water, carbohydrates, proteins, lipids, minerals, vitamins, and other dietary components through comparing structure, function, and other aspects of the gastrointestinal tracts and their effects on digestion, absorption, and metabolism of nutrients in livestock species

B. Course Additions.

1) AGR 3250 – Introduction to Research, Fall. Lec. 2. Credit. 2. Pre-Requisites: 3250 - Sophomore Standing

Course Description: This course will introduce the scientific process and walk through the process of conducting research step-by-step. Upon completing this course, you will be able to find and evaluate helpful resources, read and understand scholarly articles, collect and interpret data, and use your knowledge to answer scientific questions of value to the agricultural industry.

2) AGR 3275 – Practical Applications in Research, Spring. Lab. 2. Credit. 1.
Prerequisite: 3275 – Sophomore standing; AGR 3250
Course Description: This course will provide an opportunity for you to apply your skills in critical thinking and research introduced in Introduction to Research to a real-world research project. During this course you will work collaboratively to conduct research to answer a scientific question. You will collect and analyze data and interpret and evaluate results. Upon completion of this course, you will have gained practical knowledge of the scientific process, and how you can use your skills to advance the agricultural industry.

Motion to approve. Lisa Zagumny
Second. Julie Baker
Vote. Motion carried

17. <u>Music</u>

A. Addition of New Concentration.

The School of Music is proposing a new option in Musical Theatre under the Bachelors of Music, Performance degree.

Currently, students who are admitted to the BM in Performance degree have the option to select from the following concentrations: instrumental, piano, vocal, composition, and jazz performance. We would like to propose a new option, Musical Theatre.

We have encountered many students who have a strong interest in musical theatre and we are currently unable to serve these students. This interest has come from current students as well as prospective students. The absence of this degree program has resulted in losing prospects to other programs and current students transferring to other institutions.

Our campus is a great fit for this degree option, due to the abundance of musical theatre resources already available to us. Our current faculty, facilities, programs, and internship partnerships are perfectly suited for a musical theatre option.

Motion to approve. Lisa Zagumny
Second. Julie Baker
Vote. Motion carried

B. Course Additions.

1) MUSA 1001 - Live Audio Engineering, Introductory I
Credit: 2 (Lec: 1 Lab: 3) Prerequisite: None

Course Description: An introductory level course in live audio engineering that will focus on the basics of audio system design. This will include the interconnection and function of system components, cabling, connectors, signal impedance, gain structure, and an introduction to signal processing.

All music majors must achieve a grade of "C" in each music course.

2) MUSA 1002 - Live Audio Engineering, Introductory II
Credit: 2 (Lec: 1 Lab: 3) Prerequisite: MUS 1171
Course Description: An introductory level course in live audio engineering that will focus on room acoustics, properties of sound waves, and psychoacoustics. Students will be introduced to a variety of shop tools and trained in their safe use. Students will be taught to load, transport, and unload professional grade audio equipment.

All music majors must achieve a grade of "C" in each music course.

3) MUSA 2001 - Live Audio Engineering, Intermediate I
Credit: 3 (Lec: 2 Lab: 3) Prerequisite: MUS 1172
Course Description: An intermediate level course in live audio engineering that will focus on the operation of more complex audio systems. Students will learn listening skills for audio mixing, microphone selection and placement, and loudspeaker design and application.

All music majors must achieve a grade of "C" in each music course.

4) MUSA 2002 - Live Audio Engineering, Intermediate II
Credit: 3 (Lec: 2 Lab: 3) Prerequisite: MUS 2171
Course Description: An intermediate level course in live audio engineering that will focus on parametric EQ, compressors, and gates for enhanced audio mixing. This course will cover performance monitors as well as digital effects, wireless microphones, and the basics of RF technology.

All music majors must achieve a grade of "C" in each music course

5) MUSA 3001 - Live Audio Engineering, Advanced I
Credit: 3 (Lec: 2 Lab: 3) Prerequisite: MUS 2172
Course Description: An advanced level course in live audio engineering that will focus on the operation of complex audio systems. Students will be introduced to in–ear and advanced monitor mixing, advanced miking techniques for musical theater, and advanced RF topics. Students will also learn AC power distribution systems, rigging safety, and on–site repair.

All music majors must achieve a grade of "C" in each music course.

6) MUSA 3002 - Live Audio Engineering, Advanced II
Credit: 3 (Lec: 2 Lab: 3) Prerequisite: MUS 3171
Course Description: An advanced level course in live audio engineering that will focus on the operation of complex audio systems. Students will be

taught advanced EQ and compression techniques as well as the miking of non– traditional instruments. Students will be introduced to Ableton® and MainStage® digital audio workstations, live performance recording techniques (DECCA/ORTF) and trained in the use of Pro Tools® for live recording applications.

All music majors must achieve a grade of "C" in each music course.

7) MUSA 4001 - Live Audio Engineering, Professional
Credit: 3 (Lec: 2 Lab: 3) Prerequisite: MUS 3172
Course Description: A professional level course in live audio engineering that will focus on the expert design, operation, troubleshooting, and maintenance of complex audio systems. Students will be introduced to acoustic simulation and loudspeaker modeling software, the planning and management of live events, and the roles of front of house engineer, monitor engineer, system engineer, and stage techs.

All music majors must achieve a grade of "B" in this course.

8) MUSA 4002 - Live Audio Engineering, Professional II
Credit: 3 (Lec: 2 Lab: 3) Prerequisite: MUS 4171
Course Description: A professional level course in live audio engineering that will focus on sound reinforcement for orchestral miking, design and installation of fixed audio systems, and venue structural and power needs. Students will also begin preparations for entry into the professional world by learning about professional organizations, continuing education opportunities, and tour/travel etiquette.

All music majors must achieve a grade of "B" in this course.

9) MUS 1650 - Ballet I
Credits: 1 (Lab: 3) Prerequisite: Enrollment in B.M. in Performance: Musical Theatre Concentration.
Course Description: An introductory course in the fundamentals of ballet technique for majors in the Bachelor of Music in Performance: Musical Theatre Concentration. No prior dance experience required.

All music majors must achieve a grade of "C" in each music course.

10) MUS 1660 - Ballet II
Credits: 1 (Lab: 3) Prerequisite: Enrollment in B.M. in Performance: Musical Theatre Concentration MUS 1650 – Ballet I
Course Description: A continuation of Ballet I (MUS 1650), this course progresses to intermediate level instruction in the fundamentals of ballet technique for majors in the Bachelor of Music in Performance with a Musical Theatre Concentration.

All music majors must achieve a grade of "C" in each music course.

11) MUS 1670 - Tap I

Credits: 1 (Lab: 3) Prerequisite: Enrollment in B.M. in Performance: Musical Theatre Concentration MUS 1650 – Ballet I
Course Description: An introductory course in the fundamentals of tap technique for majors in the Bachelor of Music in Performance: Musical Theatre Concentration. No prior dance experience required.
All music majors must achieve a grade of "C" in each music course.

12) MUS 1680 - Tap II
Credits: 1 (Lab: 3) Prerequisite: Enrollment in B.M. in Performance: Musical Theatre Concentration MUS 1670 – Tap I
Course Description: A continuation of Tap I (MUS 1670), this course progresses to intermediate level in the fundamentals of tap dance technique for students enrolled in the Bachelor of Music in Performance: Musical Theatre Concentration.

All music majors must achieve a grade of "C" in each music course.

13) MUS 3030 – Musical Theatre History
Credits: 3 (Lec: 3) Prerequisite: None
Course Description: A study of the history and repertoire of musical theatre from its origins to the present.

All music majors must achieve a grade of "C" in each music course.

14) MUS 4800 – Musical Theatre Internship
Credits: 6 (Other: 6) Prerequisite: Enrollment in B.M. in Performance: Musical Theatre Concentration and approval of instructor.
Course Description: This course is an internship for students in the Bachelor of Music Performance: Music Theatre Concentration. The internship is with a faculty approved theatre company or performance venue, with preference given to the Cumberland County Playhouse in Crossville, TN.

All music majors must achieve a grade of "B" in this course.

15) MUS 3960 – Junior Project
Credits: 1 (Other: 3) Prerequisite: None
Course Description: This course is designed as a junior capstone experience. The nature of the work is open-ended, therefore the form and content of the project will be decided by the student and the chosen advisor for the course (usually, but not limited to, the student's academic mentor or applied teacher). The project design should include practical and academic components and should traverse various areas of interest (can include the student's minor or concentration).

All music majors must achieve a grade of "C" in each music course.

16) MUS 4010 – Senior Project
Credits: 1 (Other: 3) Prerequisite: None
Course Description: This course is designed as the senior capstone experience. The nature of the work is open-ended, therefore the form and content of the project will be decided by the student and the chosen advisor

for the course (usually, but not limited to, the student's academic mentor or applied teacher). The project design should include practical and academic components and should traverse various areas of interest (can include the student's minor or concentration).

All music majors must achieve a grade of "B" in this course.

Course Changes.

17) Change: Cross-list existing THEA course as a MUS course.

MUS 1115 / THEA 2110 – Play Production

18) Change: Cross-list existing THEA course as a MUS course.

MUS 1230 / THEA 2155 – Voice and Diction

Motion to approve. Lisa Zagumny
Second. Julie Baker
Vote. Motion carried

18. **Other Such Matters**

A. Election of Nomination Committee.

1) Christy Killman
2) Melinda Anderson
3) Thomas Timmerman

B. Honors Colloquium.

1) Dr. Rita Barnes shared with the committee that the Honors department is now accepting proposals for the Honors Colloquium.

No other such matters being presented, the meeting was adjourned at 4:19pm.