

SUBCOMMITTEE A – AGENDA

Via Zoom
January 20, 2022
1:30 p.m.

PART I – NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

1. Request to change the requirements for the **Bachelor of Arts** degree in **Interior Design** in the School of Planning, Design and Construction.
 - a. Under the heading **Admission**, replace paragraph three with the following:

Selective admissions are made at the end of spring semester for Michigan State University and transfer students from those students who have met the criteria referenced. The final selection of students to be admitted to the major is based on the cumulative grade–point average of all courses taken and a grade–point average calculated for selected courses and portfolio review by faculty members.
 - b. Under the heading **Requirements for the Bachelor of Arts Degree in Interior Design**, make the following changes:
 - (1) In item 1., replace paragraph two with the following:

The University's Tier II writing requirement for the Interior Design major is met by completing Interior Design 442. This course is referenced in item 3. below.
 - (2) Delete items 3. b. and 3. c.
 - (3) Reletter item 3. d. to 3. b. and replace with the following:

Any two of the following History of Arts options (6 to 9 credits):

 - (1) Any History of Art course (3 to 4 credits).
 - (2) Any History of Art course (3 to 4 credits).
 - (3) IDES 490 Independent Study (3 to 5 credits) earned through the Interior Design Education Abroad program.
 - (4) IDES 456 Historic Preservation and Sustainability (3 credits).

Effective Fall 2022.

2. Request to change the requirements for the **Agricultural Technology Certificate** in **Agricultural Industries** in The Institute of Agricultural Technology.
 - a. Under the heading **Requirements for Agricultural Industries** make the following changes:
 - (1) In item 4. delete the following course:

CSS	143	Introduction to Soil Science	2
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Add the following course:

CSS	203	World of Soils	2
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Effective Summer 2022.

3. Request to change the requirements for the **Agricultural Technology Certificate** in **Agricultural Operations** in The Institute of Agricultural Technology.

a. Under the heading **Requirements for Agricultural Operations** make the following change:

(1) Change the total credits for the program from '60' to '60 to 65'.

(2) In item 1. delete the following course:

ABM	130	Farm Management I	3
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Add the following course:

AFRE	130	Farm Management I	3
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(3) In item 3., add the following last sentence:

Students at Muskegon Community College are required to complete 28 additional credits of course work. Students at Southwestern Michigan College are required to complete 30 to 31 additional credits of course work.

Effective Spring 2022.

4. Request to change the requirements for the **Agricultural Technology Certificate** in **Food Processing, Technology and Safety** in The Institute of Agricultural Technology.

a. Under the heading **Requirements for Food Processing, Technology and Safety** make the following changes:

(1) In item 1., delete the following course:

ABM	100	Decision-making in the Agri-Food System	3
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Add the following course:

AFRE	100	Decision-making in the Agri-Food System	3
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(2) In item 3., delete 'Lansing Community College' and 'Northwestern Michigan College'.

(3) In item 3., add 'Wayne County Community College District'.

(4) In item 3., add 'Students at Muskegon Community College are required to complete 28 additional credits of course work'.

Effective Spring 2022.

5. Request to change the requirements for the **Agricultural Technology Certificate** in **Fruit and Vegetable Crop Management** in The Institute of Agricultural Technology.

a. Under the heading **Requirements for Fruit and Vegetable Crop Management** make the following changes:

(1) In item 1., delete the following course:

ABM	130	Farm Management I	3
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Add the following course:

AFRE	130	Farm Management I	3
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- (2) In item 1., change the credits of HRT 218 from '3' to '2'.
- (3) In item 2., change the elective credits from '7' to '8'.
- (4) In item 3., delete 'Montcalm Community College'.
- (5) In item 3., add 'Students at Muskegon Community College are required to complete 32 additional credits of course work'.

Effective Spring 2022.

6. Request to change the requirements for the **Agricultural Technology Certificate in Landscape Management** in The Institute of Agricultural Technology.
 - a. Under the heading **Requirements for Landscape Management** make the following change:
 - (1) In item 1., change the credits of HRT 218 from '3' to '2'.
 - (2) In item 2., change the elective credits from '3' to '4'.
 - (3) In item 3., delete 'Montcalm Community College' and 'Southwestern Michigan College'.
 - (4) In item 3., add 'Students at Muskegon Community College are required to complete 32 additional credits of course work'.

Effective Spring 2022.

COLLEGE OF ENGINEERING

1. Request to change the **Admission to the College** statement in the **College of Engineering**. The University Committee on Undergraduate Education (UCUE) will consider this request at its January 10, 2022 meeting.
 - a. Under the heading **Admission to the College** replace the last paragraph with the following:

Students interested in applying for a degree granting major in the College of Engineering may apply for admission during each semester, and applications will be reviewed after the end of each semester. Students must be admitted to a degree-granting college at the time they have completed 56 credits.

Effective Fall 2022.

2. Request to establish a **Graduate Certificate in Secure and Connected Cyber-Physical Systems** in the Department of Electrical and Computer Engineering. The University Committee on Graduate Studies (UCGS) recommended approval of this request at its October 18, 2021 meeting.
 - a. **Background Information:**

The most recent U.S. Bureau of Labor Statistics 2019-2029 employment projections show that cyber security jobs are expected to grow at more than 8 times the rate for all occupations, about 4 times the rate for all STEM occupations, and more than 2.7 times the rate for all computer occupations. This demand is driven by the need to secure and build trust in a growing digitized economy as more and more consumers and businesses connect devices to the internet and more sensitive data is stored online and in the cloud. The increased demand for cybersecurity has led to academic departments across the nation to develop courses and programs for undergraduate and graduate students to build knowledge in cybersecurity and address the growing demand for cybersecurity-related workers. Federal departments and agencies such as NSF, NIST, DHS, DOE, and DoD emphasize cybersecurity education, training, and workforce development.

The Department of Electrical and Computer Engineering (ECE) within the College of Engineering is well positioned to offer focused training to graduate students on secure and connected cyber-

physical systems (CPS), an important part of cybersecurity dealing with the security of networked intelligent devices and systems that have both computational and physical elements. Some CPS application areas include smart grid, autonomous transportation, healthcare, civil infrastructure, manufacturing, and consumer appliances. Courses associated with the certificate are already part of the ECE graduate curriculum.

b. **Academic Programs Catalog Text:**

The Graduate Certificate in Secured and Connected Cyber-Physical Systems is intended for students with interest in the modeling, design, and analysis of secure and networked cyber-physical systems (CPS). The certificate prepares students for both research work as well for jobs in government and industry insecure and connected CPS, which are growing rapidly.

Requirements for the Graduate Certificate in Secure and Connected Cyber-Physical Systems

	CREDITS
Students must complete all of the following courses (9 credits):	
ECE 816 Cryptography and Network Security	3
ECE 830 Embedded Cyber-Physical Systems	3
ECE 842 Performance Modeling of Communication Networks	3
Students must have a minimum 3.00 grade-point average over the courses applied to the certificate for it to be awarded.	

Effective Summer 2022.

COLLEGE OF NATURAL SCIENCE

1. Request to delete the curriculum and degree requirements for the **Master of Arts for Teachers** degree in **Mathematics** in the Department of Mathematics. The University Committee on Graduate Studies (UCGS) will provide consultative commentary to the Provost after considering this request. The Provost will make a determination after considering the consultative commentary from the University Committee on Graduate Studies.

No new students are to be admitted to the program effective Spring 2020. No students are to be readmitted to the program effective Spring 2020. Effective Fall 2021, coding for the program will be discontinued and the program will no longer be available in the Department of Mathematics. Students who have not met the requirements for the Master of Arts for Teachers Degree in Mathematics through the Department of Mathematics prior to Fall 2021 will have to change their major.
2. Request to change the requirements for the **Master of Science** degree in **Plant Biology** in the Department of Plant Biology. The University Committee on Graduate Studies (UCGS) will consider this request at its January 20, 2022 meeting.
 - a. Under the heading **Requirements for the Master of Science Degree in Plant Biology** make the following changes:
 - (1) In item 1. a. delete the following course:

PLB	804	Frontiers in Plant Biology	2
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Effective Fall 2022.

COLLEGE OF VETERINARY MEDICINE

1. Request to change the requirements for the **Doctor of Veterinary Medicine** degree in **Veterinary Medicine** in the College of Veterinary Medicine. The University Committee on Graduate Studies (UCGS) will consider this request at its January 24, 2022 meeting.
 - a. Under the heading **Admission to the Professional Program in Veterinary Medicine** replace paragraph seven with the following:

All prerequisite courses must be completed by the spring semester of the year of matriculation with a minimum grade of 2.0 in each course. One hundred percent of the science prerequisite courses must be complete at the time of application, with a minimum grade of 2.0 in each course.

Effective Fall 2022.

PART II - NEW COURSES AND CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

- FSC 421 Food Laws and Regulations
Spring of odd years. Summer of even years. 3(3-0) ~~P: HNF 150 or FSC 211 or ABM 100~~ P: HNF 150 or FSC 211 or AFRE 100
Adoption, interpretation, and enforcement of laws and regulations governing food processing and foodservice systems. Impact of regulation on food production, availability, marketing, and safety.
~~Effective Fall 2018~~ Effective Spring 2022
- FSC 423 Functional Foods and Human Health
Spring of even years. 3(3-0) ~~P: (HNF 150 or (HNF 311 or concurrently)) and (MMG 205 or MMG 301 or FSC 342) and ((BMB 200 or concurrently) or (BMB 401 or concurrently))~~ P: ((HNF 150) or HNF 150) and (MMG 201 or MMG 301 or FSC 342) and ((BMB 200 or concurrently) or (BMB 401 or concurrently))
Concept, nature and classification of functional foods. Spectrum of biological activity. Positive and negative impacts on health, and regulatory aspects.
~~Effective Fall 2021~~ Effective Spring 2022
- FOR 861 Applied Urban Forest Management
Fall of every year. 3(3-0) RB: FOR 461
NEW Applications of software for integrated planning and management of urban forest resources.
Effective Fall 2022
- HRT 102 Plants for Food, Fun, and Profit
Fall of every year. ~~Spring of every year.~~ Summer of every year. 2(2-0)
~~Introduction to the science and art of horticulture including plant breeding, ornamental plant and food production (organic and traditional), postharvest handling, horticultural industries and landscaping. Educate consumers about horticultural plants, products, and their relationship to environment.~~ Introduction to the science and art of horticulture including home and commercial horticulture, and sustainable production practices. Educate consumers about horticultural plants, products, and their relationship to the environment.
~~Effective Summer 2016~~ Effective Fall 2022
- HRT 362 Applied Crop Improvement
~~Spring of every year.~~ Spring of odd years. 1(3-0) P: HRT 203 and PLB 105
~~History of plant improvement. Basic genetic principles of crop breeding and biotechnology. Class meets weeks 6 to 10 of the semester.~~ History of plant improvement. Basic genetic principles of crop breeding and biotechnology.
~~Effective Fall 2014~~ Effective Fall 2022
- HRT 403 Handling and Storage of Horticultural Crops
Fall of every year. ~~3(2-3)~~ 3(3-0) P: BS 161 or PLB 105 R: Not open to freshmen or sophomores.
~~Biological principles involved in quality maintenance of horticultural products. Control of deterioration during harvesting, handling, transport, and storage.~~ Biological principles involved in quality maintenance of horticultural products. Control of deterioration during harvesting, handling, transport, and storage. Food security.
SA: HRT 482
~~Effective Fall 2014~~ Effective Fall 2022
- HRT 405 Sustainable Practices for Horticultural Food Crop Production
Spring of every year. 1(1-0) P: HRT 203
Effects of horticultural practices on ecosystem services, integrated efficiency across perennial and annual food crop production systems. Impact of crops on the land and biodiversity. Management decision-making. Global forces impacting sustainability.
DELETE COURSE
Effective Fall 2022

HRT 460	Green Roofs and Walls Fall of every year. <u>Spring of every year.</u> 2(2-0) Interdepartmental with Fisheries and Wildlife and Geography and Planning, Design and Construction. P: HRT 203 or FW 101 or GEO 206 or PDC 120 or EGR 100 R: Open to juniors or seniors or graduate students. Green roof and wall design and installation practices including plant species and substrates. Environmental impact, ecosystem services, integration with other environmental practices. Influence of economics, public policy, and industry organizations on the implementation of green roofs on a wide scale. Multidisciplinary nature of planning and implementation of successful green roof and wall projects. Effective Fall 2016 <u>Effective Fall 2022</u>
CSS 105	Agricultural Industries Seminar Fall of every year. 1(2-0) R: Open to agricultural technology students in the Agricultural Industries Major. Preparation for academic and professional success. Introduction to opportunities in the agriculture industry. SA: AEE 105 <u>DELETE COURSE</u> Effective Spring 2022
CSS 143	Introduction to Soil Science Fall of every year. Spring of every year. 2(2-0) R: Open to agricultural technology students in the Institute of Agricultural Technology. Not open to students with credit in CSS 210. Soil and its impact on plant growth, plant and water relations, drainage, nutrients, soil as a resource, and erosion control techniques. <u>DELETE COURSE</u> Effective Spring 2022
CSS 201	Forage Crops Fall of every year. 3(2-2) R: Open to undergraduate students or agricultural technology students. Forage crop production, management, and utilization; crop identification; soil fertilization; planting and harvesting of grasses and legumes. Identification, production, management, and use of grass and legume forage crops as hay, silage, and pasture <u>Effective Spring 2014</u> <u>Effective Spring 2022</u>
CSS 203	World of Soils Fall of every year. Spring of every year. 2(2-0) Not open to students with credit in CSS 210.
NEW	Importance of soils in all ecosystems focusing on agriculture and urban landscapes. Effective Spring 2022
CSS 460	Plant-Microbe Interactions Spring of every year. 3(3-0) P: CSS 360 or MMG 301 or approval of department
NEW	Plant responses to the surrounding microbial communities, including pathogens and mutualists. Evaluation of the role of microbial communities in plant health Effective Spring 2022
CSS 485	Physiology in Plant Nutrition Spring of every year. 3(3-0) Interdepartmental with Horticulture. P: PLB 301 or HRT 361 or approval of department
NEW	Nutrient uptake, transport and storage in plants. Regulation of nutrient homeostasis in crop plants and genetic variation in plant nutrition. Effective Summer 2021
CSS 898	Master's Research Fall of every year. Spring of every year. Summer of every year. 1 to 6 credits. R: Open to graduate students in the Crop and Soil Sciences major. Approval of department; application required. <u>R: Open to graduate students in the Crop and Soil Sciences major. Approval of department; application required. A student may earn a maximum of 10 credits</u>
NEW	Scholarly project for non-thesis (Plan B) master's degree <u>Request the use of the Pass-No Grade (P-N) system.</u> Effective Fall 2021

PLP 105	Fundamentals of Applied Plant Pathology Spring of every year. 2(2-2) <u>1(1-0)</u> R: Open to students in the Institute of Agricultural Technology. Not open to students with credit in PLP 405. C: <u>PLP 105L concurrently.</u> Diseases of major agronomic and horticultural plants. Disease management. Offered first ten weeks of the semester. Effective Spring 2014 <u>Effective Spring 2023</u>
PLP 105L	Fundamentals of Applied Plant Pathology Lab Spring of every year. 1(0-2) R: Open to students in the Agricultural Industries Major. C: PLP 105 concurrently.
NEW	Identification of disease signs and symptoms in major agronomic and horticultural plants. Disease management techniques. Effective Spring 2023
PLP 898	Master's Research Fall of every year. Spring of every year. Summer of every year. 1 to 6 credits. R: Open to graduate students in the Plant Pathology major. Approval of department; application required. <u>R: Open to graduate students in the Plant Pathology major. Approval of department; application required. A student may earn a maximum of 6 credits</u>
NEW	Scholarly project for non-thesis (Plan B) master's degree <u>Request the use of the Pass-No Grade (P-N) system.</u> Effective Spring 2022

COLLEGE OF ENGINEERING

CHE 872	Polymers and Composites: Manufacturing, Structure and Performance Spring of even years. 3(3-0) <u>Interdepartmental with Materials Science and Engineering. R: Open only to graduate students in the College of Engineering or the Department of Chemistry. R: Open to graduate students in the College of Engineering or in the Department of Chemistry.</u> Structure-Property Relations of Polymers, Fibers, Fabrics and Composites, Material Selection, Manufacturing Processes, Process Induced Microstructure, Prediction of Composite Mechanical Properties, Dimensional Stability, Design of Cure Cycles, Mold Design. Effective Spring 2000 <u>Effective Fall 2022</u>
CHE 972	Viscoelasticity and Flow of Polymeric Materials Spring of odd years. 3(3-0) <u>Interdepartmental with Materials Science and Engineering. RB: MSE 876 R: Open to graduate students in the College of Engineering or approval of department.</u> Time dependent and steady flow properties of polymeric materials related to molecular and structural parameters. Examples of polymeric blends and composites with thermoplastic and thermoset components. Effective Spring 2021 <u>Effective Fall 2022</u>
MSE 801	Foundations of Materials Science and Engineering Summer of every year. 3(3-0) RB: Undergraduate degree in science or engineering related to Materials Science. <u>RB: Students who are considering a graduate degree in materials science and engineering but do not have an undergraduate degree in materials science and engineering</u> Structure-Property-Processing-Performance interrelationship of metals, ceramics and polymers. Phase diagrams, thermomechanical treatments, physical and mechanical properties, processing, diffusion, microstructure studies, environmental effects. Effective Summer 2021 <u>Effective Summer 2022</u>

MSE 876	Advanced Polymeric Materials Fall of even years. 3(3-0) <u>Interdepartmental with Chemical Engineering. RB: At least one semester of undergraduate level course in Polymeric Materials. R: Open to graduate students in the College of Engineering or approval of department.</u> Advanced topics in polymer structure and properties. Thermoplastics, thermosets, polyblends and elastomers. Processing techniques. Deformation and mechanical properties. Thermal, optical and chemical properties. Composites. SA: MSM 876 Effective Fall 2002 <u>Effective Fall 2022</u>
CE 800	Structural Dynamics Fall of every year. 2(2-0)
NEW	Dynamic response of single degree-of-freedom systems. Damping in structure and soils. Time and frequency domain methods. Analytical and numerical techniques. Earthquake response spectra. Classical and finite element formulation. Effective Spring 2022
CE 802	Introduction to Dynamics and Earthquake Engineering Fall of every year. 2 credits. RB: MSM 306 Not open to students with credit in ME 461. Dynamic response of single degree-of-freedom systems. Damping in structures and soils. Time domain and frequency domain methods. Analytical and numerical solution techniques. Earthquake response spectra. <u>DELETE COURSE</u> Effective Spring 2022
CE 803	Structural Dynamics Fall of every year. 1(1-0) C: CE 802 concurrently. Dynamic analysis of beam, frame and truss structures. Classical and finite element formulations. Model analysis and numerical integration techniques. Response to earthquakes. Computing response using a finite element program. <u>DELETE COURSE</u> Effective Spring 2022
CE 839	Smart Materials and Structures Spring of even years. 3(3-0) RB: CE 407 and CE 804
NEW	This course provides an introduction to the field of smart materials and structures. The content focuses on the characteristics of different types of smart materials, their properties, and constituent behavior. Effective Spring 2022
CSE 232	Introduction to Programming II Fall of every year. Spring of every year. <u>Summer of every year.</u> 4(3-2) P: (CSE 231 or CMSE 202) and (LB 118 or MTH 124 or MTH 132 or MTH 152H) Continuation of object-centered design and implementation in C++. Building programs from modules. Data abstraction and classes to implement abstract data types. Static and dynamic memory allocation. Data structure implementation and algorithm efficiency. Lists, tables, stacks, and queues. Templates and generic programming. SA: CSE 330 Effective Fall 2017 <u>Effective Fall 2022</u>
CSE 260	Discrete Structures in Computer Science Fall of every year. Spring of every year. <u>Summer of every year.</u> 4(5-0) P: MTH 133 or MTH 126 or MTH 153H or LB 119 Propositional and first order logic. Equivalence and methods of proof. Basics of counting. Set operations, relations, functions. Grammars and finite state automata. Discrete probability. Applications to computer science and engineering. SA: CPS 260 Effective Fall 2018 <u>Effective Fall 2022</u>

- CSE 290 Independent Study in Computer Science
Fall of every year. Spring of every year. Summer of every year. 1 credit. A student may earn a maximum of 3 credits in all enrollments for this course. R: Approval of department; application required.
Supervised individual study in an area of computer science.
SA: CPS 290
~~Effective Spring 2014~~ Effective Fall 2022
- CSE 320 Computer Organization and Architecture
Fall of every year. Spring of every year. Summer of every year. 3(3-0) P: CSE 232 and CSE 260
R: Open to students in the Department of Computer Science and Engineering or in the Computer Engineering Major or in the Lyman Briggs Computer Science Coordinate Major or in the Lyman Briggs Computer Science Major or in the Computer Science Disciplinary Teaching Minor. Not open to students with credit in ECE 331.
Boolean algebra and digital logic. Combinational and sequential circuits.
Representations of data and instructions. Architecture and major components of computer systems. Assembly language programming and interfacing to high level languages. Assembler and linker processing.
SA: CPS 320
~~Effective Spring 2014~~ Effective Fall 2022
- CSE 490 Independent Study in Computer Science
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. A student may earn a maximum of 3 credits in all enrollments for this course. R: Open to students in the Computer Engineering Major or in the Computer Science Major. Approval of department; application required.
Supervised individual study in an area of computer science.
SA: CPS 490
~~Effective Fall 2015~~ Effective Fall 2022
- CSE 498 Collaborative Design (W)
Fall of every year. Spring of every year. 4(2-4) ~~P: (CSE 402 or CSE 415 or CSE 422 or CSE 431 or CSE 440 or CSE 450 or CSE 471 or CSE 476 or CSE 477 or CSE 482) and (CSE 402 or CSE 420 or CSE 425 or CSE 435 or CSE 440 or CSE 460 or CSE 472 or CSE 477 or CSE 480 or CSE 482) and (CSE 335 and completion of Tier I writing requirement) and (CSE 325 or CSE 410) P: (CSE 402 or CSE 415 or CSE 422 or CSE 431 or CSE 440 or CSE 450 or CSE 471 or CSE 476 or CSE 477 or CSE 482) and (CSE 402 or CSE 420 or CSE 425 or CSE 435 or CSE 440 or CSE 460 or CSE 472 or CSE 477 or CSE 480 or CSE 482) and ((CSE 300 and CSE 325 and CSE 335) and completion of Tier I writing requirement)~~ R: Open to students in the Computer Science Major or in the Lyman Briggs Computer Science Coordinate Major.
~~Development of a comprehensive software and/or hardware solution to a problem in a team setting with emphasis on working with a client. Participation in a design cycle including specification, design, implementation, testing, maintenance, and documentation. Issues of professionalism, ethics, and communication.~~ Development of a comprehensive software and/or hardware solution to a problem in a team setting with emphasis on working with a client. Participation in a design cycle including specification, design, implementation, testing, maintenance, and documentation. Issues of professionalism, ethics, and communication. Students may be asked to sign a non-disclosure agreement ("NDA") or an assignment of intellectual property rights ("IP Assignment") to work with some project sponsors.
SA: CSE 449, CSE 478, CSE 479
~~Effective Fall 2019~~ Effective Fall 2022
- ECE 855 Non-cooperative Game Theory
Fall of even years. 3(3-0) A student may earn a maximum of 3 credits in all enrollments for this course.
- NEW Elements of a game, zero-sum games, non-zero-sum games, dynamic games, stochastic games
Effective Fall 2022

- ECE 858 Networked Control Systems
Fall of every year. 3(3-0) A student may earn a maximum of 3 credits in all enrollments for this course. P: ECE 851
- NEW Fundamentals on dynamics, estimation, and control of network systems, algebraic graph theory, multi-agent coordination.
Effective Fall 2022
- ECE 871 Micro-electro-mechanical Systems Fabrication
Spring of every year. 3(3-0) ~~P: ECE 870 or ECE 477~~ RB: ECE 477
~~Development of a complete integrated microsystem from inception to final test. Design, fabrication and testing of integrated microsystems. Development of a complete multichip microsystem containing sensors, signal processing, and an output interface. Basic MOS device and circuit processes, wafer bonding and micromachining, low power portable devices and diamond MEMS chips. Design, simulation, fabrication (at Lurie Nanofabrication Facility, U of Michigan) and testing of integrated microsystems. Development of a complete microsystem containing sensors and actuators using Silicon On Glass (SOG) MEMS process. Basic E/D MOS circuits chips will designed and simulated but will not be fabricated. The fabricated MEMS chips will be tested at MSU. Effective Spring 2004 Effective Spring 2023~~
- ~~ECE 960e~~
ECE 960C Networked and Embedded Control Systems
Spring of odd years. 3(3-0) P: ECE 851
Fundamentals on hardware, software, and networking. Stability and control of hybrid systems. Switched systems. Control with communication constraints. Fundamental limits on bit rate. Multi-agent coordination and control.
~~Effective Fall 2015~~ Effective Fall 2022
- EGR 102 Introduction to Engineering Modeling
Fall of every year. Spring of every year. Summer of every year. 2(1-3) P: (MTH 132 or concurrently) or (MTH 152H or concurrently) or (LB 118 or concurrently) R: Open to students in the College of Engineering or in the Lyman Briggs College. ~~Not open to students with credit in CSE 131.~~
Application of systematic approaches to engineering problems. Problem decomposition and identification of a solution approach. Solution using tools such as advanced spreadsheet features and MATLAB. Data representation, curve fitting and analysis. Mathematical modeling of engineering systems. Application of principles through team-based engineering projects.
~~Effective Fall 2014~~ Effective Fall 2022

COLLEGE OF HUMAN MEDICINE

- HM 591 Special Problems in Human Medicine
Fall of every year. Spring of every year. Summer of every year. 1 to 34 credits. ~~A student may earn a maximum of 36 credits in all enrollments for this course. A student may earn a maximum of 54 credits in all enrollments for this course. R: Open only to graduate professional students in the College of Human Medicine. R: Open to graduate-professional students in the College of Human Medicine.~~
Work under the direction of a faculty member on an experimental, theoretical, or applied problem that requires a broad, interdisciplinary approach.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
~~The work for the course must be completed and the final grade reported within 6 semesters after the end of the semester of enrollment. The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.~~
~~Effective Fall 1992~~ Effective Fall 2021

COLLEGE OF NATURAL SCIENCE

- BLD 805** Communication in the Sciences
Fall of every year. ~~Summer of every year.~~ 2(2-0)
Professional communication in clinical laboratory science, including article and proposal writing, thesis writing, posters, and presentations.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 3 semesters after the end of the semester of enrollment.
~~Effective Summer 2015~~ Effective Spring 2021
- NSC 495**
HBIO 495 Capstone in Human Biology (W)
Fall of every year. Spring of every year. 3(3-0) P: Completion of Tier I writing requirement. R: Open to seniors in the Human Biology Major.
Integration of human biology disciplines with a focus on health and disease.
~~Effective Fall 2019~~ Effective Fall 2022
- NSC 496**
HBIO 496 Directed Study in Human Biology
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P: Completion of Tier I writing requirement.
Directed studies in human biology.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
~~Effective Fall 2014~~ Effective Fall 2022
- NSC 497**
HBIO 497 Internship in Human Biology
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P: Completion of Tier I writing requirement. Not open to students with credit in NSC 493.
Practical experience applying human biology training outside the classroom setting.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
~~Effective Fall 2014~~ Effective Fall 2022
- NSC 498**
HBIO 498 Research in Human Biology
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P: Completion of Tier I writing requirement.
Research in faculty laboratories
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
~~Effective Fall 2014~~ Effective Fall 2022
- STT 421** Statistics I
Fall of every year. Spring of every year. Summer of every year. 3(3-0) ~~P: MTH 103 or MTH 110 or MTH 116~~ P: MTH 103 or MTH 116 or MTH 116 or MTH 103B or MTH 124 or (MTH 132 or concurrently) or (MTH 133 or concurrently) or (MTH 234 or concurrently) or (MTH 299 or concurrently) Not open to students with credit in STT 200 or STT 201.
Basic probability, random variables, and common distributions. Estimation and tests for one-, two-, and paired sample problems. Introduction to simple linear regression and correlation, one-way ANOVA.
~~Effective Fall 2014~~ Effective Summer 2020

- STT 422 Statistics II
~~Fall of every year.~~ Spring of every year. ~~Summer of every year.~~ 3(3-0) ~~P: STT 421 or STT 441~~ P: STT 421 or STT 442 Not open to students with credit in STT 464.
Goodness of fit and other non-parametric methods. Linear models including multiple regression and ANOVA for simple experimental designs.
~~Effective Fall 2017~~ Effective Summer 2020
- STT 461 Computations in Probability and Statistics
Spring of every year. 3(3-0) ~~P: (STT 441 and CSE 231) and (MTH 309 or MTH 314 or MTH 317H or MTH 415)~~ P: (CMSE 201 or CSE 231) and (MTH 309 or MTH 314 or MTH 317H or MTH 415) and STT 441
Computer algorithms for evaluation, simulation and visualization. Sampling and prescribed distributions. Robustness and error analysis of procedures used by statistical packages. Graphics for data display, computation of probabilities and percentiles.
~~Effective Fall 2014~~ Effective Spring 2022

COLLEGE OF OSTEOPATHIC MEDICINE

- OST 594 Spirituality and Osteopathic Medicine
Fall of every year. Spring of every year. 1(1-0) A student may earn a maximum of 6 credits in all enrollments for this course. R: Open to osteopathic medicine students in the College of Osteopathic Medicine.
- NEW An introduction to the role of Spirituality in Osteopathic Philosophy.
Request the use of the Pass-No Grade (P-N) system.
Effective Spring 2022