UNIVERSITY OF MICHIGAN
College of Engineering
Curriculum Committee Meeting
Tuesday, January 30, 2024

Attending: Achilleas Anastasopoulos, Sarah Barbrow, Yavuz Bozer, Chris Fidkowski, Fei Gao, Saadet Albayrak Guralp, Vineet Kamat, Amir Kamil, Ryan Latimer, Xiaogan Liang, Emmanulle Marquis, Radoslaw Michalowski, Mika Panagou, Ben Spector, Elyse Vigiletti, Roxanne Walker

Support Staff: Mercedes Carmona, Betsy Dodge, Matthew Faunce

Call to Order: 1:35 PM

Adjourned: 2:12 PM

Agenda:

1. Approval of 1.16.2024 Meeting Minutes - Page 2 - **APPROVED**
2. HLC Annual Audit Questions 3 & 4 for the CoE Curriculum Committee – Informational Item – Page 5 - **PENDING**
    a. ChE: This discussion was brought to our department meeting. Overall conclusion was that the department is not opposed to courses having online modules or components that count toward the contact hour as long as it is a small portion of the course. How this is defined needs to be specified, such as being able to watch the student's progression. There needs to be a deliverable assessment piece that proves the outcome was achieved and it should be standardized across the college. This is an acceptable and needed change of the policy, as the learning environment is constantly changing and there is a need to adapt for the students' learning outcomes.
    b. Graduate Education: Graduate and Undergraduate degrees completed online is the future. Policies, such as the credit policy, need to be adjusted as it will only be an issue later, and will position the college well. Another issue would be lab as online learning continues. How will this be monitored and affect the contact hours and credit hour overall? Examples that have been used through online learning for lab are sending lab equipment for the student to complete on their own and virtual learning through a shared, collaborative and possible virtual space. Institutions that are already incorporating this in undergraduate and graduate education are University of Illinois and Purdue University. Of course, this depends on the nature of the course to use online as a learning method, but collaborative work can be done this way and will become the standard for education.
    c. Chair/MECHENG: I will look at previous meeting minutes to include all feedback regarding this ongoing discussion and meet with the CoE Registrar Office to discuss revising the Credit Policy.
3. CoE/LSA Joint Meeting Agenda Items – Informational Item - **PENDING**
    a. We are reaching out to ADUE and LSA to determine if a joint meeting is of interest between both colleges and determining what topics are to be discussed.
        i. Previous Topics that were submitted for last year's Joint Meeting that was cancelled:
            1. Reciprocity for Minor Approvals between CoE and LSA
                a. Response from Kevin Pipe: Go through LSA/CoE Curriculum Committee and include Tim McKay. Not a blanket reciprocal policy, understanding between both schools.
                b. CoE Member who brought this topic forward has discussed with those needed and cleared up any issues.
            2. HLC Annual Audit Process within CoE
                a. Betsy Dodge reached out to LSA and they have no issues. CoE does have issues.
                b. This topic does not need to be pursued with LSA.
            3. The CoE Incomplete Grade Policy and Course Withdrawals

a. Response from Kevin Pipe: LSA is planning to move back to the 9th week for AY24-25. We don't have an incomplete policy written up yet.
b. Chair/MECHENG: We need to double check these policies compared between the two colleges and will provide the information to the committee at the next meeting.

4. Sharing of student credit hours
    a. Xiaogan asked, Is this for cross-listed courses? I know we mentioned this to the University Registrar Office, but I haven't talked with Tim about it.
    b. There is no background information from anyone in CoE for a reason as to why this was brought up as a topic to bring to LSA. Therefore, there is no need to bring this up to LSA, unless a member remembers the background information for this topic.

ii. Are these topics still of interest to bring to LSA? Any new topics?

1. EECS - CSE: Whether an I Grade shows up on a transcript. In LSA, they asked that we get rid of the I when we submit the final grade. There are Honor Code Issues with the I Grade. Student finishes the work and doesn't make sense for an I Grade to show up because of this. To post an I Grade for an LSA Student, LSA needs to approve this twice, which creates double the work for the department that is not needed.
    a. MECHENG: To keep or remove as this can affect students and their career development. I Grade is a temporary mark. We don't want this as a permanent mark.
    b. Graduate Education: The I Grade does not factor into the GPA, which can cause issues for students applying to graduate school. Doesn't leave a good impression on the student. I Grade vs F Grade. Students would rather choose the I Grade. Refer to ADGPE Policy and Process for Graduate Students with Incomplete Grades document shared in the chat as this includes instructions for graduate students and I Grades.
    c. CEE: Current rule has until the following semester to complete the work. The department recently had an issue with a student who applied to another school and had an I Grade listed on their transcript. I Grade is not for students to pass and make up the work. There needs to be a legitimate reason as to why the student didn't finish the course in time. Sort of a punishment as the student doesn't want the I Grade and affects the transcript. Does LSA have the same policy?
    d. Chair/MECHENG: Yes. We shouldn't let this affect the student. Not a good mark and shouldn't permanently appear.
    e. Graduate Education: More education needed for the advising faculty. Y grade is a work in progress and better to appear on transcripts.
    f. CoE Registrar Office: The URO is very clear that Y Grades should not be used for an I Grade. Y Grades are strictly used for multi semester courses and should only be the use of the Y grade.
    g. IOE: Courses that have a Summer term team project, but the course is taken in the Winter term. Work continues over two terms and therefore will then receive a grade once completed.
    h. Chair/MECHENG: Is this enough to take to the LSA to pursue as a topic of discussion?
    i. CEE: Would be good for LSA to also have a response and stay consistent with the policies.
    j. Chair/MECHENG: Change CoE's Incomplete Policy like the LSA policy.
        i. CEE: What is the rationale behind their updated policy?
        ii. Chair/MECHENG: I am unsure. There needs to be a review of their policy to continue our discussion on this topic.
2. Graduate Education: There needs to be more information provided for SUGS as this would benefit all students, campus wide. In April, ADUE will partner for a campus/cross campus reach for sessions providing a pathway for SUGS. To what extent would we need to formalize this with LSA? Pilot programs consisting of IOE and CLASP. These departments already had relationships with LSA faculty and programs so this could be a route to pursue to spread information and grow these programs.
    a. Chair/MECHENG: Please provide any documentation for this topic to further pursue if this is a topic to discuss with LSA.

CARF SUMMARIES

PAGE	SUBJECT	COURSE #	ACTION	SUMMARY	EFFECTIVE TERM	MIN. GRADE REQ. FOR ENF. PREPREQ	Is Course on LSA Course Guide?	APPROVED	NOTES & REVISIONS	TABLED
7	**ECE**	**517**	**MOD**	Changes in Course & Abbreviated Title, Course Description, and Advisory Prerequisite.	**FT 2024**	**NO**	**YES**	**CONDITIONAL APPROVAL**	Cross listed with NERS 578. Changes to Course Description and Advisory Prerequisite.	

UNIVERSITY OF MICHIGAN
College of Engineering
Curriculum Committee Meeting
Tuesday, January 16, 2024

Attending: Achilleas Anastasopoulos, Robert Bordley, Yavuz Bozer, Laura Burdick, Chris Fidkowski, Fei Gao, Saadet Albayrak Guralp, Vineet Kamat, Amir Kamil, Leena Lalwani, Ryan Latimer, Xiaogan Liang, Frank Marsik, Radoslaw Michalowski, Mika Panagou, Rachel Patterson, Anchal Sareen, Rachael Schmedlen, Ben Spector, Roxanne Walker

Support Staff: Mercedes Carmona, Betsy Dodge, Matthew Faunce

Call to Order: 1:35 PM

Adjourned: 2:46 PM

Agenda:

1. Approval of 12.05.2023 Meeting Minutes - Page 2 - **APPROVED**
2. CSE DS-Eng Program Modification Proposal – Action Item - Page 5 – **APPROVED**
    a. The current Data Science major is missing an introductory Data Science course for students to become more familiar with Data Science as well as not seeing statistics content until taking STATS 412. To combat these issues, DATASCI 101 (STATS 206) has been developed and is strongly encouraged for students to take. For students that have already taken a statistics course before discovering Data Science, there will still be acceptance of other introductory level statistics courses.
    b. Another change will be splitting the two course "advanced technical elective" requirement into one course of "advanced technical elective" and one course of "advanced statistical analysis electric" (STATS 306, 315, 415, 426, 449, 451, 470, 480, 485, and some 500 level options which will be accessible only to some advanced students). Statistical analysis courses will continue to appear on the technical elective and application elective lists, which will remain unchanged. This change will make sure that one advanced statistical analysis course is taken and to help balance the interdisciplinary major between its CS and statistics components; it was previously the case that one could potentially graduate without taking any course other than STATS 413 from the statistics department. Most DS students already take multiple advanced statistics courses, but the recent restrictions on declaring CS make it timely to prevent a DS major from skewing excessively toward CS.
        i. A follow up question was asked if a student can take both classes at the same time. If a student chooses to, they will have a path to take both classes simultaneously.
    c. Program proposal effective for Fall 2024 with changes applying only to students matriculating for Fall 2024 or later. Any student in the program before Fall 2024 will be grandfathered into the previous requirements. Overall program credits changing from 128 to 132.
3. CSE CS-Eng Program Modification Proposal – Action Item - Page 9 – **APPROVED**
    a. Modification of reducing the number of required Upper Level CS (ULCS) Technical Electives from 16 credits to 15 credits and increasing the number of General Electives from 15 credits to 16 credits. This change will make it easier for students to register for courses needed to complete the major and increase the set of courses that satisfy the ULCS Requirements.
        i. Every course that satisfies the ULCS Requirements is a 4-credit course as students take 4 courses for 4 credits to achieve the 16 credits requirement.
        ii. Exceptions, sent by the student and approved by the department, are allowed for students for 3-credit courses for study-abroad courses through IPE (i.e., Computer Science and Tech Career Accelerator in Prague).

iii. By adjusting the ULCS Technical Electives credit total to 15, this will make it easier for the department and students regarding exceptions as the department has seen numerous done throughout the program for the credit requirement.
    1. The overall program credits will stay the same at 128 credits as rearranging the credit totals will allow for less exceptions needed for both the department and students within the program.

b. Program proposal effective for Fall 2024 and is "backwards compatible" meaning a student who meets the current program requirements would also meet the new program requirements.

4. HLC Annual Audit Questions 3, & 4 for the CoE Curriculum Committee – Informative Item – Page 12 - **PENDING**
    a. How can we change our current credit hour policy to include online modules? How can we set a boundary for the credit hours, and no one can abuse? I.e., Record all lectures and just let the students view when they can to complete the course.
        i. NERS: Depends on CoE Policy, if this is allowed for online classes then it would be allowed for all classes.
        ii. MECHENG: Office of Provost has definition of credit hours. Such activity should be faculty lead and there should be interaction with the faculty and not just for the student to take the course online.
        iii. EECS: What steps or processes does a course need to go through to be able to be online? ADUE needs to approve our department's courses. Is that the same for all departments/College of Engineering?
            1. Graduate Education: ADUE is the department that online courses need to go through.
            2. BIOMEDE: Fill out a form from the Dean's office, but the form has since gone away. You do need approval; seems to me the university wants the students on campus and interacting in person instead of a student completing the course whenever they want and having distractions therefore not fully paying attention/giving 100% effort. Students love this course, ENGR 101/110, but is a course that you need to be there for, and a remote option wouldn't be the same.
    b. CLIMATE & SPACE: The course contains weekly discussion and a 1-hour engagement of Office Hours for one of the 15 modules. Each module takes 45 or so minutes, which adds up to the contact hours needed and is engagement. With the policy, saying 50 hours and a student goes and completes whenever they choose, isn't adding up to the weekly contact hours if a student is to do all course work in one sitting.
    c. ENGR: Credit hour = some sort of engagement. Not a problem with zero engagement. If we can provide an engagement component or examples, then this is something that can be moved forward, i.e., Office hours, the discussions. If we can define that and how much can contribute to contact hours, that is what is needed for this course.
    d. EECS: Federal definition of engagement with a course instructor. What this course is doing, qualifies under this definition. As long as hybrid or online requires approval from one of the assistant deans, then there should be no issue. Office hours or Piazza should not count towards contact hours, but rather required interactive modules.
    e. MECHENG: Piazza and office hours could be using hours, but what is performed during those activities is what should be focused on.
    f. EECS: Led by an instructor. Office hours should not count towards contact/credit hours if this is a student spending an hour doing homework while the instructor is present. The instructor needs to be interactive and making engagement.
    g. MECHENG: Academic lead or faculty member should say that.
    h. NAVARCH: In Person, Lectures, online discussion (this should exclude email exchanges) should count towards contact hours. There is no real time interaction with the instructor via online.
    i. Graduate Education: Flip classroom model. Have students watch videos ahead of time and come to class with questions as this follow up should count towards contact hours. Digital co-existence between instructor and student, such as within the same zoom can count more versus answering individual student inquires through email and/or Piazza.
    j. NAVARCH: Specific time set aside to ask questions, but that is referred to as office hours.
    k. CHE: Office hours aren't specified as a mandatory for students to attend versus other courses that do make this a requirement.
        i. IOE: Agreed as our department also has courses that make office hours a course requirement.
        ii. CLIMATE & SPACE: Keep in mind that ENGR 101/110 does require that 1 of the 15 modules as a mandatory office hour session to be attended by the student.
        iii. That's the exception. Syllabus doesn't make office hours required/mandatory.
    l. 1 lecture hour with the professor, 2 hours independent study = 1 credit hours. Still a blurred boundary to defining credit hours.

m. Graduate Student Representative: A lot of classes just have the videos uploaded to Canvas and don't make the lecture mandatory, even though this is a contact hour. This should also be considered.
    i. MECHENG: ENGR 101/110 has material created by the instructor and is a difference. Faculty led material should be consider as contact hours.
    ii. EECS: Students don't attend lectures if they are not required to. Some courses have 30% attendance for their lectures. Recordings are offered to students that do not attend lecture; therefore, a student is not required to attend and can complete later on their own time.
    iii. MECHENG: If I refuse to do this and provide recordings, then there will be pushback and the feedback will show from students. I don't think we can fix this issue and need to revert the policy.
    iv. CHE: It is up to the student when to complete the lecture. So, how do we define any contact hours? I.e., 2 students attending lecture when there are over 100 students registered for the course. Does this truly still count for a contact hour for those that attend lecture as it is not the entire class roster attending?
    v. NAVARCH: How many hours is the instructor offering as the effort to prepare the material for the entire course should also be counted towards office hours.
n. Members are to email Xiaogan with any feedback on the policy and discussions will continue at the next meeting on 1.30.2024.

PAGE	SUBJECT	COURSE #	ACTION	SUMMARY	EFFECTIVE TERM	MIN. GRADE REQ. FOR ENF. PREPREQ	Is Course on LSA Course Guide?	APPROVED	NOTES & REVISIONS	TABLED
14	BIOMEDE	211	MOD	Change in Enforced Prerequisite and Contact Hours for HLC Audit.	FT 2024	C-	YES	CONDITIONALLY APPROVED	Change the Course Components and Contact Hours.	
17	BIOMEDE	221	MOD	Change in Full Term Credit Hours, Course Credit Type, and Enforced Prerequisites	FT 2024	C-	YES	CONDITIONALLY APPROVED	Change the Course Components and Contact Hours.	
20	CSE	585	NEW		FT 2024	C	NO	APPROVED		
39	EECS	388	MOD	Change in Course Description and Advisory Prerequisite.	FT 2024	C	YES	APPROVED		
42	EECS	491	MOD	Change in Course Description and Enforced Prerequisite.	FT 2024	C	YES	CONDITIONALLY PPROVED	Change to Course Description	
45	ENGR	161	NEW		FT 2024	NO	NO	CONDITIONALLY APPROVED	Change to Course Description and Credit Exclusion.	
56	MECHENG	305	MOD	Change in Advisory and Enforced Prerequisites.	FT 2024	NO	YES	CONDITIONALLY APPROVED	Change to Course Description.	

HLC Annual Audit Questions for the CoE Curriculum Committee

1. **How should departments handle courses that are taught in combination with other institutions? How should departments handle it when the course is taught at UM? "Do courses that are a teaching collaborative need to follow CoE Policy for the Assignment of Credit Hours? Examples: ROB 498 and 599 (Robotics)**

ROB 498.004/ROB 599.010 was offered as part of our distributed teaching collaborative and was a course offered between U-M and FAMU. We aligned our course to the FAMU scheduling as their instructor was teaching the course. They plan to run this in WN 24 ROB 498.015/ROB 599.015

2. **When was the lab policy established? (IOE)**

   The Current CoE Policy for the Assignment of Credit Hours was approved October 13, 2020.

3. **Do labs need to be scheduled in a formal CoE Computer Lab space when the work can be done online? (EECS)**

Atul Prakash: I do think the definition of a lab course and the way contact hours are measured is not ideal for software courses in which the lab work can be done virtually at any time and any place by the students. I don't think it is ideal even for hardware courses in which students are able to use a virtual or portable kit and thus a physical lab is less critical. I would recommend another way to designate a course as a lab in CoE so that the courses can get sufficient SCH credit for supporting the teaching staff. A possible way to think about it is if the students are building real or virtual artifacts with software and hardware that requires technical support.

Question for CCC discussion: Does the CCC agree with the use of virtual technical support? How would that look, would students receive immediate feedback?

4. **Are the activities associated with the online, self-paced, asynchronous Canvas modules used in ENGR 101 and 110 and other departmental courses acceptable as CoE contact hours?** These course use contact hours as follows, per feedback from Rachael Schmedlen

The following feedback to define contact hours was gathered from Christne Gerdes, one of the Office of the Provost's identified curriculum specialists for HLC project, regarding guidance on using online self-paced, asynchronous Canvas modules as contact hours:

The Office of the Provost Guidance on Defining the Academic Credit Hour states: Faculty and instructors — with oversight and input from faculty-led curriculum committees — should determine the activities that would appropriately be viewed as faculty-led engagement within the context of a course and academic program.

Contact hours are defined as time spent by students engaged with the course instructor. This is academic engagement. Hybrid and online courses require an equivalent amount of instruction and student work as required by in-person courses.

Engagement with the course instructor/academic engagement is defined by federal guidance, and to be considered a contact hour, the activity in question must follow the regulations under letter (a):

(a) Participation in an interactive tutorial, webinar, or other interactive computer-assisted instruction

If it meets the standard of (a), as per CoE Curriculum Committee determination, then it is a contact hour. Letter (b) listed below would not follow the determination for the CoE contact hour:

(b) Logging into an online class or tutorial without any further participation

Course Approval Request Form

Office of the Registrar, University of Michigan

1210 LSA Building
500 S. State Street
Ann Arbor, MI 48109-1382
Phone: 734.763.2113
Fax: 734.936.3148
ro.curriculum@umich.edu
ro.umich.edu

☑ CHECK APPROPRIATE BOXES FOR ALL CHANGES

Action Requested
- ☐ New Course
- ☑ Modification of Existing Course
- ☐ Deletion of Existing Course

Date of Submission: 2023-10-16
Effective Term: Fall 2024

☑	Course Offered ☑ Indefinitely ☐ One term only	**RO USE ONLY** Date Received: Date Completed: Completed By:

	CURRENT LISTING	**REQUESTED LISTING**
☐	Dept (Home): Electrical & Computer Engineering Subject: ECE Catalog: 517	Dept (Home): Electrical & Computer Engineering Subject: ECE Catalog: 517
☐	☑ Course is Cross-Listed with Other Departments	☑ Course is Cross-Listed with Other Departments
	Department / Subject / Catalog Number	Department / Subject / Catalog Number
	Nuclear Engineering & Radiological Sciences - NERS - 578	Nuclear Engineering & Radiological Sciences - NERS - 578
☑	Course Title (full title) Physical Processes in Plasmas	Course Title (full title) Low Temperature Plasmas
☑	Abbreviated Title (20 char) Phys Proc in Plas	Abbreviated Title (20 char) Low Temp Plasmas
☑	Course Description (Please limit to 50 words and attach separate sheet if necessary) Addresses the science and technology of low temperature, partially ionized, non-equilibrium plasmas as used for materials processing, biotechnology/medicine, environment/energy, lasers, displays and lighting. The course topics include the fundamentals of electron-atom/molecule collisions, electron and ion transport; and electrostatic, magnetostatic and electromagnetic interactions with plasmas. Fundamental aspects of the kinetics of plasmas, electron energy distributions and diagnostics are addressed. Applications of these fundamentals to electrical discharges and plasma sources are discussed.	
☐	Full Term Credit Hours Undergraduate Min: 3 Graduate Min: 3 Undergraduate Max: 3 Graduate Max: 3	Half Term Credit Hours Undergraduate Min: Graduate Min: Undergraduate Max: Graduate Max:
☐	Course Credit Type Undergraduate Student, Rackham Graduate Student	
☐	Repeatability ☐ Course is Repeatable for Credit Maximum number of repeatable credits:	☐ Course is Y graded ☐ Can be taken more than once in the same term

Subject: Electrical & Computer Engineering Catalog: 517

☐	Grading Basis ☑ Graded (A – E) ☐ Credit/No Credit ☐ Satisfactory/Unsatisfactory ☐ Pass/Fail ☐ Business Administration Grading ☐ Not for Credit ☐ Not for Degree Credit ☐ Degree Credit Only	Add Consent ☐ Department Consent ☐ Instructor Consent ☑ No Consent	Drop Consent ☐ Department Consent ☐ Instructor Consent ☑ No Consent

	CURRENT LISTING	REQUESTED LISTING
☑	Advisory Prerequisite (254 char) EECS 330	Advisory Prerequisite (254 char) Physics 240/260 and Math 216 or Math 286 or Math 396
☐	Enforced Prerequisite (254 char) Minimum grade requirement:	Enforced Prerequisite (254 char) Minimum grade requirement:
☐	Credit Exclusions	Credit Exclusions

☐	Course Components ☑ Lecture ☐ Seminar ☐ Recitation ☐ Lab ☐ Discussion ☐ Independent Study	Graded Component ☑ ☐ ☐ ☐ ☐ ☐	Terms Typically Offered ☑ Fall ☐ Winter ☐ Spring ☐ Summer ☐ Spring/Summer

Cognizant Faculty Member Name: Mark J.Kushner Cognizant Faculty Member Title:

SIGNATURES ARE REQUIRED FROM ALL DEPARTMENTS INVOLVED (Please Print AND Sign Name)

Contact Person: Nancy Slowey Email: nslowey@umich.edu Phone: 734-763-2305

CoE Curriculum Committee Representative:	Achilleas Anastasopoulos	Print: Achilleas Anastasopoulos	Date: 1/19/24
CoE Curriculum Committee Chair:		Print:	Date:
Home Department Chair:	Heath Hofmann	Print: Heath Hofmann	Date: 1/16/24
Cross-Listed Department Chair:	Todd Allen	Print:Todd R Allen	Date: 2 Nov 2023
Cross-Listed Department Chair:		Print:	Date:
Cross-Listed Department Chair:		Print:	Date:

DEPARTMENTAL/COLLEGE USE ONLY

Current:	Requested:
Course Description Plasma physics applied to electrical gas discharges used for material processing. Gas kinetics; atomic collisions; transport coefficients; drift and diffusion; sheaths; Boltzmann distribution function calculation; plasma simulation; plasma diagnostics by particle probes, spectroscopy and electromagnetic waves; analysis of commonly used plasma tools for materials processing.	Course Description Addresses the science and technology of low temperature, partially ionized, non-equilibrium plasmas as used for materials processing, biotechnology/medicine, environment/energy, lasers, displays and lighting. The course topics include the fundamentals of electron-atom/ molecule collisions, electron and ion transport; and electrostatic, magnetostatic and electromagnetic interactions with plasmas. Fundamental aspects of the kinetics of plasmas, electron energy distributions and diagnostics are addressed. Applications of these fundamentals to electrical discharges and plasma sources are discussed.
Class Length Full term	Class Length Full term
Contact hours (lecture): 3	Contact hours (lecture): 3
Contact hours (recitation)	Contact hours (recitation)
Contact hours (lab)	Contact hours (lab)

Additional Info:

Submitted by:
Home dept

Describe how this course fits with the degree requirements:

Special resources of facilities required for this course:

Supporting statement:
Updating the advisory prerequisite to accurately reflect the concepts needed for students to be successful in the course.

The title and description better reflect how the course has been taught for the last many years.